Author:
Wardle, Nicola M. H

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Centre and periphery : the impact of Mycenaean civilization on its neighbours

CENTRE AND PERIPHERY

THE IMPACT OF MYCENAEAN CIVILIZATION ON ITS NEIGHBOURS

VOL I

NICOLA M H WARDLE

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Abstract

It has been clear for over a century that Mycenaean contact with many regions from Italy to Egypt occurred from an early period, but only in the last few decades have the amount and quality of the information become sufficient to allow a detailed, evidence-based analysis of the progress and results of this contact. Existing regional studies of individual areas during the last twenty years have explored the extent of Mycenaean trade and contact with local cultures but the nature and outcome of this influence have rarely been addressed, nor has any attempt been made to adopt a unified approach.

This thesis examines, for the first time, the levels and effect of Mycenaean trade applying the principles of cultural domain analysis to archaeological data on a quantitative basis. It compares the resultant levels of acculturation in the northern half of the Mediterranean basin as a whole in order to contrast the different patterns of development and influence.

It has been possible to identify probable Ports of Trade in each region, to demonstrate the relatively high levels of acculturation in Sicily and the west coast of Anatolia, in contrast to low levels in Sardinia, Albania or Epirus and to preclude the existence of formal Mycenaean settlements, with the probable exception of Miletus and Thapsos.

To my parents, whose passion for archaeology inspired me and to whom I owe an incalculable debt of gratitude.

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1.INTRODUCTION

1.1 BACKGROUND

Contact between the Aegean and neighbouring areas in Europe and Anatolia has been attested and discussed for many years (for example Harding 1984; Bouzek 1985; 1994; Kilian 1990; Gale 1991), but the nature, extent and end product of the contact has remained in many respects enigmatic. The recent accumulation of evidence concerning different aspects of this interaction, ranging from pottery and metalwork to architectural styles and even agriculture, which all point to a varying degree of Mycenaean influence, has demonstrated that the character of the contact between the Mycenaeans and the immediate peripheral areas needs to be reassessed from first principles. Without a uniform methodology new finds often require the reassessment of *all* the evidence.

Having studied Sicily and the Aeolian islands in the context of their contact with the Mycenaean world for an MA dissertation (Wardle N., 1997), I soon established, through this research, that other areas of the Mediterranean basin deserved similar attention and that no single synthesis of the effects of Mycenaean impact on the northern Mediterranean area had been attempted. Despite the scale of this project and the variety of countries and languages involved in the research, I felt equipped to undertake this task. Assisting on excavations in Macedonia and with study seasons in Mycenae for a number of years had already made me familiar with the difference between material from the Mycenaean heartland and peripheral (in a geographical sense) areas. My fluency in Greek, Italian and French enabled me to study the original site reports and other publications. I soon determined that this was necessary for Anatolia as well and I

have managed to learn enough Turkish and German to extract the relevant data from publications dealing with this region.

1.2 AIMS

Since previous studies have tended to be Myceno-centric or Sardino-centric, for example, in their perspective, my intention has been to ensure not only that the Mycenaean elements are correctly identified, but also that they are placed within their local cultural context. My aims have thus been, first, to obtain an overview of the local cultures[1]; second, to examine the routes and focal points of Mycenaean 'trade'; and third, to ascertain the effect of this contact on the native populations in terms of changes in material culture, and where possible in terms of social interaction, fusion and acculturation. Taken together they should contribute insights into the nature of contact in the different areas and the factors which promoted it.

Originally I planned to explore *every* aspect of Mycenaean civilisation and its effects on the indigenous cultures. Faced, however, with a seemingly endless bibliography covering individual sites, I soon realised that some aspects, while important, could only be summarised on the basis of authoritative sources. For example a detailed account of the excavation of every site or individual find was clearly impossible, but references to excavation reports and further bibliography for each site are to be found in Appendix 1. Another major topic, which deserves exploration in its own right, but is beyond the word limit of this thesis, is the metalwork of possible/probable Mycenaean origin in Italy and other areas. The discussion in Chapter 5 is confined to general trends and the most significant examples of metalwork as indicators of contact and influence.

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[1] The order of this enquiry is of particular significance in respect of the view held by Arafat & Morgan (1994, 130), among others, that 'the investigation of the material culture of any region from a starting point of trade or exchange inevitably impedes understanding of local material behaviour and social development'.

1.3 SCOPE

The lack of attention given to the northern Mediterranean in comparison to Egypt and the Levant and the relative wealth of information in these regions immediately suggested three areas for study –

i) Italy, which comprises Sardinia, Sicily and the southern Italian peninsula (and, where used, refers to all of these jointly),

ii) Epirus, Albania and Macedonia. Although logically the finds in Thessaly should be of considerable importance to this study, the level of information available for this region, particularly of the local culture, is still insufficient to go beyond the studies by Feuer (1999).

iii) Anatolia. The study has been confined to the west coast which appears to be the main area influenced by Mycenaean contact.

The chronological limits of this thesis cover the period from the first impact of Aegean influence in the Middle Minoan and Middle Helladic period (from c.1650 BC) up to 1050 BC, by which time all traces of Mycenaean civilisation have disappeared in the heartland and changes caused by contact with it have already occurred. (Some confusion has arisen over the nature of the Middle Helladic material in Italy as it is often referred to as Mycenaean in Italian publications.) Evidence which is utilised in this thesis includes the geography and topography of the sites; the architectural remains, both domestic and funerary; the grave goods, where applicable; metalworking and its finished products; the pottery – indigenous, imported and locally copied Mycenaean. Archaeobotanical and archaeozoological evidence, where available, has also been discussed.

Throughout, this study emphasises the importance of all these finds in their indigenous context, with particular focus on changes which occurred after Mycenaean contact was established and which could theoretically, though not necessarily, have been caused by it. Among these are, for example, the introduction of elements of social complexity, which are high level indicators of acculturation (see Table 2.2) and the adoption of Mycenaean pottery technologies which, though widespread, were probably of less cultural significance.

1.4 A BRIEF HISTORY OF RESEARCH AND DISCOVERY

Although finds of Mycenaean origin have been recognised widely for over a century, systematic research was only initiated in the last three decades. Even so a number of key discoveries or discussions of earlier date make an important contribution to the understanding the contact between Mycenaean Greece and its neighbours. Important contributions have been made by various scholars to general discussions of the nature and processes of contact between the different cultures bordering the Mediterranean (*cf.* Bouzek 1985; Kilian 1990; 1994; Gale 1991a; Sherratt & Sherratt 1991; 1998; Kristiansen 1998 *inter alios*).

1.4.1 Italy: Sardinia, Sicily and the southern Italian peninsula

Mycenaean pottery from Italy and the adjacent islands has been noted since the beginnings of systematic excavation, starting in 1871 with the discovery of a Bronze Age rock cut tomb in the vicinity of Syracuse[2]. The contents, which include two Mycenaean three-handled jars along with local pottery (now known as Thapsos ware), were the subject of an article by L. Mauceri in 1877.[3] While he observed that they were unusual, Heinrich Schliemann's excavations at Mycenae had only just begun and the origin of these two jars was therefore not recognised. By 1886, A. Furtwängler in his work on Mycenaean pottery had already included these two vases from Sicily as well as two stirrup jars from Oria in Apulia (Furtwängler & Loeschke 1886, 47-48).

Interest in this field continued under the auspices of P. Orsi. The discovery of a number of other Bronze Age tombs on the island of Sicily, in which Mycenaean pottery was fairly common, provided the first evidence for substantial contact with the Mycenaean world and fuelled the beginnings of the continuing debate concerning Mycenaean

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[2] The tomb at Matrensa, near Syracuse was discovered by chance when a cart fell into it after the vault collapsed (Vagnetti 1999).

[3] The first mention of this tomb was in 1871 by R. Engelman at the meeting of the *Instituto di Corrispondenza Archeologica* and was published in its bulletin in 1872, but the full publication by Mauceri was in 1877, 56-58. Orsi conducted further excavation of the tomb (1898, 197-212; 1903).

influence in the western Mediterranean. The picture was further clarified by the discovery in 1899-1900 of the important Bronze Age settlement of Scoglio del Tonno, which still has some of the best examples of Mycenaean imported pottery throughout the entire western Mediterranean (Quagliati 1900).

By 1939 Mycenaean material had become widely recognised in other parts of Italy, particularly in the region of Apulia. It was only after the Second World War, however, that two archaeologists, L. Bernabò Brea and M. Cavalier (1960; 1966; 1968; 1980; 1990; 1991; 1992) began excavations in the Aeolian islands, where a complete sequence from the Neolithic to the end of the Bronze Age was discovered. It was the Mycenaean pottery that they discovered on these islands that became the starting point for W. D. Taylour's work published in 1958, which still remains a useful survey of Mycenaean material in Italy up to that date. Since the publication of that volume, systematic excavations and chance finds have greatly increased the database, particularly by bringing Sardinia into the picture (cf. Webster 1996; Rowlands Jr 2001, for general surveys of the Nuraghic culture and the place of Mycenaean contact).

New material has resulted in new interpretations and a great interest in establishing theoretical frameworks for long-distance trade in the Mediterranean (Chapter 2.2).

Publication of finds has been accompanied by provisional summaries of their significance (cf. especially Bietti Sestieri 1983; 1985; 1988; Vagnetti 1993b; 1996b; 1998a; 1998c; 2000; Winjgaarden 1999; 2002 on the use and distribution of Mycenaean and Mycenaean style pottery; Bettelli 2002), but it is the conferences and their subsequent publication that have proved invaluable in gaining a greater understanding of the nature and extent of this trade. A few of the conference volumes deserve special mention, particularly *Magna Grecia e il Mondo Miceneo* (Vagnetti 1982a); *Traffici micenei nel Mediterraneo, problemi storici e documentazione archaeologica* (Marazzi *et al* 1986); *Atti e memorie del secondo congresso internazionale di micenologia* (de Miro *et al* 1996) and *'EPI PONTON PLAZOMENOI' Simposio italiano di studi egei dedicato a Luigi Bernabó Brea e Giovanni Pugliese Carratelli* (La Rosa, Palermo & Vagnetti 1999) which include many of the more recent excavations. More recently attention has turned to chemical analysis in an attempt to trace the specific origins of the Mycenaean pottery. Current results indicate that a large percentage of this pottery found

in the Western Mediterranean was locally made (Jones & Day 1987; Jones & Vagnetti 1991; 1992; Jones 1993a; 1993b; Jones *et al* 2002; Vagnetti 1998a; Buxeda i Garrigos *et al* 2003; see 5.1.8, 5.2.8, 5.3.8). Of greater significance to the study of the role of Mycenaean contact and interaction in the western Mediterranean in particular will be the full publication of the papers from the 10th International Aegean Conference held in the Italian School of Archaeology in Athens in April 2004 (for abstracts see *EMPORIA*).

Recent research by Lucia Vagnetti under the auspices of l'Istituto per gli Studi Micenei ed Egeo-Anatolici at Rome has led to the establishment of a database of Aegean pottery imported into Italy and Sicily. This database, known as DEDALO, when eventually released, will contain a complete catalogue of all the sites in Italy and Sicily with such pottery, including information on the geography, topography and archaeology of each site. The early part of the database contains material from LH I – LH IIB, which was presented in outline by Licia Re (1998, 405-413) at a conference in Rome. A brief catalogue, with a comprehensive bibliography, of the sites with Mycenaean pottery and artefacts (up to LH IIIC) has now been made available (Vagnetti 2004). It is planned to incorporate material from other areas of the Mediterranean. Internet access has not yet been established for general consultation but it will provide a useful catalogue once it is completely up and running.

1.4.2 Epirus, Albania and Macedonia

Macedonia is the best known of these three regions since A.J.B. Wace first made note of Mycenaean material in northern Greece, discovering three sites with Mycenaean pottery in addition to local handmade wares in his expedition in the early 1900s (Wace & Thompson 1909). Military operations between 1915 and 1918 uncovered more sites with Mycenaean pottery, which were reported by L. Rey in 1917-1919. Even from this early date it was clear that Macedonia had its own distinctive local culture that was not obliterated by the arrival of Mycenaean influences from the south. Early excavations, such as those at Agios Mamas, Saratse (Perivolaki) and Vardaroftsa (Axiochori) reported by W.A. Heurtley in 1939 added to this picture, but Mycenaean pottery remained only a small percentage of the total pottery assemblage. The Mycenaean

material recognised this early was of two types: imported wares, of sufficient quality to have come from the Mycenaean heartland in southern Greece, and pottery that was technically well made but of a much coarser fabric and often with simpler designs. This latter group was assumed to have been made locally.

Finds other than pottery showing Mycenaean influence were also made, such as the animal figurine from Agios Mamas illustrated by Heurtley (1939, fig. 104:y) and metal objects, like the cruciform swords found near Grevena (Casson, S., 1923, 172, fig. 2; Heurtley 1939, fig. 104:ee). Hammond compiled important syntheses of the archaeological remains in Epirus and Macedonia (1967a, 72) but these are coloured by the emphasis on population movement as the universal explanation of change.

Mycenaean pottery was reported from Kozani in the 1950s (Petsas 1953-54), but knowledge of the extent of Mycenaean contact with Macedonia remained limited until D.H. French (1967a) undertook a survey of prehistoric sites in central Macedonia in which he identified a further number of sites with Mycenaean material, although he made no attempt to date the material more specifically. The material he collected has been temporarily mislaid, but should be either in the Thessaloniki Museum or the University of Thessaloniki. More recent excavations in the region have uncovered substantial quantities of good quality Mycenaean and locally made Mycenaean artefacts at a number of settlement and cemetery sites, although much remains unpublished (*cf.* Karamitrou-Mentesidi 1993b) for a list of the sites in western Macedonia with Mycenaean material).

The small scale of these early excavations and the lack of good stratigraphic understanding did not permit dating and detailed synchronisation with the south, particularly of the locally-made Mycenaean and it was, therefore, not until the 1970s with excavations at Kastanas[4] and Assiros[5] that the problems of the relationship between Macedonia and the south could even begin to be addressed. The discovery of early Mycenaean sherds at Torone (Cambitoglou & Papadopoulos 1988; 1993), at the southern end of Sithonia, put back the date of the first imports of Mycenaean to the

[4] Preliminary reports include Hänsel 1979, Podzuweit 1979. Sections of the final report have already appeared in the *Prähistoriche Archäologie in Südosteuropa (PAS)* series 1983-1989.

coastal sites of Macedonia by at least a century and a half. Since 1990 the University of Thessaloniki has undertaken excavation at the site of Toumba Thessalonikis[6] and work has recommenced after fifty years at Agios Mamas. Both sites have contributed greatly to the understanding of the significance of Mycenaean style pottery in Macedonia (Wardle 1997b; Andreou 2004 for general surveys of the region). These five sites remain the best sources for information about both the local culture and Mycenaean contact with Macedonia.

Rescue excavations resulting from the construction of the new national road and railway network from Athens to Thessaloniki, the Nea Egnatia and the Russian gas pipeline have uncovered many new sites. In many cases, only the preliminary results have been published in *ΑΕΜΘ*, if at all and I have been extremely fortunate to be shown some of this material. While these finds have added important information to the picture of Macedonian culture and the effects of Mycenaean contact, studies of the subject as a whole remain limited, the most valuable being Wardle, K.A., (1993). Even the valuable survey by Andreou, Fotiades and Kotsakis (1996) primarily focuses on the trends in the local culture rather than the effects of contact with the Mycenaeans.

The picture is no better in Epirus where there has been relatively little archaeological exploration except at Dodona (Evangelides 1935; Dakaris 1967a; 1968). In 1968 S.I. Dakaris was the first to discover sherds of Mycenaean pottery in association with local handmade wares at this site. A number of isolated cist burials at Kalbaki, Mazaraki and other sites in the region have highlighted the importance to the inhabitants of the region of Mycenaean weapon types, but can add little more (Wardle, K.A., 1972). Limited excavations undertaken from 1975-1987 by T. Papadopoulos at Ephyra, near the mouth of the Acheron, uncovered sufficient quantities of Mycenaean pottery in association with local material to suggest its possible role as a port of trade. More recently the Nomos of Preveza has been the focus of extensive survey work by the Nikopolis project, which has identified a number of new sites with Mycenaean-style material and architecture (Tartaron & Zachos 1999; Tartaron 2004).

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[5] Preliminary reports include Wardle K.A. 1980; 1987; 1988; 1993; 1997a; Wardle K.A. & Wardle D. 2000.

[6] Preliminary reports include Andreou & Kotsakis 1991; 1994; 1995; 1997; 1999.

Albania too has recently been the focus of increasing archaeological activity with excavations at sites such as the Tren cave and the Barç cemetery in the Koritsa basin, which indicate that Mycenaean pottery (when it is found) is sometimes of crude and possibly local manufacture. A number of metal objects, including early Mycenaean swords, have been found in tumulus burials for which the best survey still remains that done by K.A. Wardle (1972; see also Prendi 1982 and Korkuti & Petruso 1993). In general,publication of material from Albania has been scant and reports from the area are infrequent, the most recent recording only one fragment of Mycenaean pottery (Blackman 2000, 159).

1.4.3 western Anatolia

Although Schliemann was primarily searching for evidence of Mycenaeans at Troy, it was only during his last campaign in 1890 that he explored the Late Bronze Age levels associated with the Troy VI fortification walls. It remained for his architect and lieutenant W. Dörpfeld to recognise the Mycenaean pottery and demonstrate its significance in his publication of 1902.

In 1922 an expedition, organised in part by the American School of Classical Studies in Athens, commenced excavation at the site of Kolophon near the modern village of Değirmendere. While the excavations were interrupted by the unsettled political conditions in Turkey, parts of the Hellenistic city and its accompanying cemetery were uncovered, though little was published. A Mycenaean tholos tomb was also identified, unique in Anatolia at the time, which remained unpublished until 1974 when R.A. Bridges Jr made a brief report in *Hesperia* on the basis of the old excavation notebooks and plans.

In the 1930s E. Gjerstad conducted a survey of Cilician sites and identified fourteen fragments which he classed as 'Helladic' and a further thirty-three sherds of 'Hellado-Cilician' ware from the site of Kazanli Hüyük (Gjerstad 1934). These wares appeared to be quite distinct from the local pottery and he went on to suggest that the 'Helladic' wares were in fact imported from the Mycenaean mainland, while the 'Hellado-Cilician'

wares were of a similar fabric to local wares and probably manufactured locally. This group of pottery is now in the possession of the Ashmolean Museum and was re-examined by E.S. Sherratt and J.H. Crouwel (1987).

While excavations were conducted at Troy, Mersin and Tarsus during the late 1930s, it was not until the 1950's that final reports on the Mycenaean material from any one site were achieved[7]. Beycesultan, which was excavated during the same period is still used as a type site for local Anatolian culture in the south western part of Anatolia. Blegen published a number of articles on the Mycenaean from Troy, with particular interest in dating the destruction of the Troy VIh settlement (1953) and Troy VII (1958) in the light of studies concerning the existence, or not, of the Trojan War. This material has now been re-studied and published by P.A. Mountjoy who has highlighted the presence of a large body of locally made Mycenaean that had gone unrecognised in the 1950s (Mountjoy 1997b). Blegen's decision to look for parallels with the Mycenaean heartland, which was after all the bulk of the material available to him, has been criticised by Mountjoy (1999b, 296).

During a visit to Bodrum in 1962, G. Bass was shown a Mycenaean jug and stirrup jar from chamber tombs at Müskebi, situated to the west of Bodrum, the results of illicit excavation by camel drivers looking for clay. Subsequent visits to the site highlighted the importance of this site and in 1963 Bass published the material collected during these visits. Boysal began systematic excavations in 1963 and in the following three years he uncovered 48 chamber tombs with remarkably rich grave offerings, including numerous Mycenaean pots of exceptional quality (Boysal 1967b; 1969a) as well as locally-made Mycenaean (Mee 1978). This cemetery, as well as providing good evidence for the role of Mycenaean material in the local culture, also led to the suggestion that the rite of cremation was imported into the Mycenaean heartland via Anatolia (Iakovides 1970, 43-57).

In 1973 excavations were carried out at the site of Maşat Höyük, probably the location of the Hittite palace of Tapigga, and uncovered, in association with later modest Hittite dwellings, a number of fragments of LH IIIB Mycenaean pottery (Özgüç 1980). This

significant collection provided the first indication of a Black Sea trade route, which previously had only been hinted at by the importance of Troy and the legends of the Golden Fleece.

In 1982 an important group of tomb goods was acquired by the Manisa museum from an antiquities dealer which, as was later established, came from Panaztepe. The wealth and quality of the material encouraged further study, and excavations therefore began in 1985 (Erkanel & Erkanel 1986). Finds from this site compared well with the material from Müskebi, indicating for the first time the probable presence of Mycenaeans along most of the western coast of Anatolia.

Until C. Mee compiled a comprehensive survey of sites with Aegean material in Anatolia, published in 1978, little had been done for the study of this considerable body of material as a whole. His work remains to this day, an essential starting point for any study of Mycenaean material in Anatolia, and his article on 'Anatolia and the Aegean in the Late Bronze Age' (Mee 1998) includes much of the new material since his original publication. To this must also be added the work of C. Özgünel, *Mykenische Keramik in Anatolien*, 1996. While this work predominantly reports the results of a new study of the material from Müskebi, it includes other more recent finds from sites in Anatolia, cataloguing them systematically by shape and date. The whole of the south eastern Aegean and the place of the Anatolian Mycenaean pottery has been reviewed recently by Georgiades (2003), focussing predominantly on the funerary contexts. Other general surveys include Mountjoy (1998), which addresses the issue of the 'interface' between pottery styles of locally made Mycenaean in south east Anatolia and particularly, Rhodes.

Recently excavations have been renewed and are continuing at Troy (Korfmann 1993; 1994; 1995; 1996; 1997; 1998; 1999; 2000; 2001; 2002; 2003), Miletus (Niemeier & Niemeier 1997; Niemeier 1997a; 1998) and Beşik Tepe (Basedow 2000), with interesting results which enable the place of Mycenaean material in the Anatolian local culture to be reconsidered (Niemeier 1997b on the place of the Mycenaeans in western Anatolia, predominantly from the perspective of his excavations in Miletus; see also

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[7] E.g. for Beycesultan Lloyd & Mellaart 1955; 1956, with final publication in 1965; for Mersin –

Greaves 2002). Around 45% of the Mycenaean pottery was apparently locally manufactured. Sites further afield, and with less probability of any direct contact with the Mycenaeans themselves, are producing evidence of acculturation for the first time with the discovery at Kilise Tepe of a group of pottery, crudely painted in imitation of Mycenaean wares (Postgate 1999). The reports in the *American Journal of Archaeology* on excavations in Anatolia are an essential source of information as new finds are discovered.

1.5 RESEARCH METHODS

Research for this dissertation falls into two parts largely carried out in parallel with each other the collection of 'primary' published data from each area, and the development of an appropriate methodology for its analysis. I have taken full advantage of the libraries in Athens, particularly those of the British, American, Italian, French and German Schools to read and compile an extensive bibliography for each region, which may be found in Volume 2. This provides a definitive and up-to-date source for articles concerning individual sites referred to within the text and appendices.

It has not been my aim to examine *in corpore* every single Mycenaean find in the areas under study. There are a number of reasons for this. Firstly, over-emphasis on the detail would obscure the overall perspective required. Secondly, in many cases the material remains only partly published and access would therefore not be granted. Finally, the time needed to view all this data in person is far greater than is possible within the scope of a PhD thesis.

For Macedonia it has been possible and practical to examine the material myself, and I am extremely grateful to those in Macedonia who have given me permission to see and handle *all* the Mycenaean-style pottery from their current excavations. My thanks are

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Garstang 1953; for Tarsus – Goldman 1956.

therefore warmly extended to Professor Stelios Andreou (Toumba Thessaloniki), Dr K.A. Wardle (Assiros), Dr Reinhard Jung (working on the material from Kastanas and Agios Mamas) and Dr Georgia Karamitrou-Mendesidi (Servia, Aiani and the district of Kozani). Without their help and interest this thesis would not have been possible. A renewed interest in modern exhibition design in the last few years has resulted in much Mycenaean style material being exhibited in regional museums.

Compilation of all the published material for this bibliography highlighted many inconsistencies in the publications, both within and between the different areas. One of the major tasks, therefore, which I have had to complete before assessing the data, has been the reassessment of the pottery evidence, particularly in regard to its date. The opportunity of assisting Dr E.B. French with her pottery studies at Mycenae itself allowed me to extend my knowledge of Mycenaean pottery from the heartland and I am indebted to her expertise, assistance and enthusiasm throughout the course of this research. This experience has enabled me to complete the essential review of all the dates of the published material from Sardinia, Sicily, the southern Italian peninsula and Anatolia and correct a substantial proportion. The pottery evidence (corrected in this way) is tabulated region by region and site by site in Chapter 4 (Tables 4.3-4.8).

Field and library research for this dissertation were largely completed in November 2000 and brought up to date as far as possible during 2003/4.

1.6 DEVELOPMENT OF THE ARGUMENT

This study is one aspect of the continuing discussion about the 'centre and periphery' of the Mycenaean world (Stoddart 1995; Rowlands 1998b for recent bibliography). In this thesis I examine the relationship between the centre – the Mycenaean heartland (essentially the Peloponnese, Boeotia and Attica but expanding with the passage of time) – and the periphery – areas with distinct local culture, but influenced by Mycenaean trade and contact. Although it is quite evident from a number of finds that there is a reflux of influence to mainland Greece, possibly accompanying imported raw

materials, an examination of this aspect of the relationship is outside the scope of my thesis.

My aim has been to establish an approach that will be as valid for finds that may be made in the future, as for those known today; and this is reflected in the methodology which I have developed to evaluate the surviving evidence for a variety of complex processes of interaction (Chapter 2). Recent theories concerning the nature of trade, the distribution of goods and the mechanisms of social interaction have largely been developed with reference to other periods and areas and must be adapted to take into account the social circumstances of contact in the Mycenaean world.

Contact between the various regions of the Mediterranean chosen for this study arises from exchange and interaction between clusters of structurally different societies. On the one hand there is the relatively sophisticated Mycenaean civilisation with its centres based on palaces and administrative territories (outlined in Chapter 3.9), and on the other societies and communities of varying complexity (Chapter 3.3-3.8). A detailed exposition of the character of the societies comprising each of these clusters – the *parameters* within which any acculturation occurred – is naturally beyond the scope of this thesis but these have been outlined on the basis of existing studies (Chapter 3) to enable the identification of such changes as may have taken place in each of these as a result of Mycenaean contact, to be identified.

The study of Late Bronze Age acculturation within the Aegean and central Mediterranean is not as advanced theoretically as for later periods and other regions. One significant difference must be emphasised at this stage. Most studies of acculturation have been carried out on the relationship between communities within a single landmass, thus many studies take the form of the examination of the nature and location of the 'frontier' between two or more communities. In the case of Mycenaean trade and contact this is largely maritime and there is no 'frontier' to be considered. The role of 'ports of trade' (2.4.4) is thus of particular significance, even in Macedonia where the rugged mountain ranges of central Greece made the most logical form of access maritime.

In order to classify and quantify the material, I have made use of the principles of Cultural Domain Analysis (2.7) as applied by Ethnographers and Anthropologists, though with necessary adaptation to accommodate material evidence rather than the responses of living witnesses. These principles have enabled the different classes of evidence to be ranked in order of importance to determining the progress of acculturation, though it must be emphasised that this study is concerned with *comparisons* between regions, not *absolute values*.

Three complementary aspects of this contact have been evaluated in turn to arrive at the synthesis presented in Chapter 6: – the *Process* by which contact was maintained at different levels of intensity; the distinctive *Product* of this contact which developed in each geographical region, and finally the *Purpose* for which contact may have been instigated and maintained, if indeed there was a conscious purpose or purposes.

The *Process* by which Mycenaean contact reached each area and was maintained forms the basis of Chapter 4. This includes a discussion of Bronze Age seafaring and the possible routes by which goods could reach their destination, with particular emphasis on identifying possible 'ports of trade' (Chapter 2.4.4) - from which the goods subsequently spread inland. This chapter also presents the complete summary of all the ceramic material from each region in tabular form, giving an idea of the frequency and volume of trade conducted between each region and the Mycenaean heartland and of changes through time.

The *Product* of this contact includes imported objects, imported technologies and concepts and the possibility of imported social ideologies. The discussion assesses how far these may have resulted in varying levels of acculturation of the indigenous populations of each region (Chapter 5). Particular attention is paid to changes in the local material culture which occurred once Aegean contact had been established, with a view to identifying the probable cause. Local products imitating Mycenaean wares and local customs imitating Mycenaean ones are significant indicators of acculturation and are discussed in detail where relevant. The discussion follows the same order as laid out in Chapter 3, region-by-region, concluding in each case with a summary of the response to Mycenaean contact.

Chapter 6 compares the extent of acculturation in each region, based on the assessment of the *relative levels* identified in Chapter 5 and on multivariate analysis of the same data. In the same way comparison made of the *contexts* in which acculturation took place in each region and of the evidence for settlement or colonisation.

The evidence for all this is set out with the aid of Tables (5.4; 5.9; 5.13; 5.15; 5.20; 5.26), which show the number of sites with material remains for each of the spheres of social activity, and the site bibliography in Appendix 1. Maps for Chapter 4 illustrate the focal points and patterns of contact, while illustrations of sites and finds demonstrate the nature of the local culture in each area (Figs 3.2-3.32), the homogeneity of Mycenaean artefacts and the local imitations deriving from them together with examples of architecture (Figs. 5.1-5.78). With the exception of Chapter 2, all figures of this kind have been placed in a second volume, together with appendices and bibliography for ease of reference. Source references for all of the figures will be found in the figure list immediately preceding them in the same volume. The pattern of acculturation is charted with the aid of a series of standardised tables derived from the exposition of the methodology in Chapter 2, to the presentation of the evidence for each area in Chapter 5, and the comparative assessment of the levels of acculturation in each area in the final chapter.

1.7 ACKNOWLEDGMENTS

It has been possible to enjoy fruitful discussions with a whole range of scholars, in addition to those already mentioned, about the meaning and significance of finds, without whose stimulating assistance this research would have been less productive. My grateful thanks are extended to Dr Penelope Mountjoy, for providing me with proofs of her pending articles on Mycenaean material from Troy; to Dr Kim Shelton for supplying me with details of Mycenaean burial practices in the Argolid (and her endless supply of Diet Coke); to Dr Jill Carington Smith for showing me her material from Kouko; to Dr Laurence Barfield for information on the Northern Italian cultures and for bringing a possible local copy of a Vapheio cup to my attention; to Dr Lorenz Bejko for bringing me up to date with current Albanian research; to Dr Victoria Buck for

reawakening my interest in geology and particularly in the effects of earthquakes on the coastline of the Mediterranean; to Dr Maria Kayafa for her perspective on the origin of metal ores; to Dr David French for discussions on the Anatolian material and his assistance in locating sites with several names; to Dr Lucia Vagnetti for her comments on pictorial pottery in Italy; to Bilge Hürmüzlü for information on the new excavations at Clazomenae and assisting me when my Turkish failed; to Eddy Faber for his advice on interpreting pottery analyses and to Dr Gillian Shepherd for her moral support, practical help and the effective use of her green sparkly pen! I have benefited greatly over the years from discussions with the following archaeologists working in Greece, Dr Haido Koukouli-Chrysanthaki, Dr Maria Pappa, †Dr Ioulia Vokotopoulou, Dr Lena Papazoglou, †The Hon Mrs H.C. Ridley and to R.N.L.B Hubbard. My thanks are owed especially to Diana Wardle for teaching me the most effective use of illustrations and assisting me with their preparation. My thanks are also extended to my advisors Prof. P.M. Warren and Dr. N. Momigliano.

A number of conferences have been held during the course of my research which have provided useful opportunities to see and discuss material with colleagues from many areas. The annual *AEMΘ* conference held in Thessaloniki is a chance for excavators to present the results of their excavations in the preceding year. Without attending this it would not have been possible to understand the place of Mycenaean objects in the local Macedonian culture. The Lamia conference on the periphery of the Mycenaean world, held in 1999, focussed specifically on the role of Mycenaean culture in peripheral areas, providing invaluable information not only on the nature of Mycenaean impact in Thessaly, but also the occurrence of Mycenaean artefacts much further afield, particularly in the Balkans. The conference held in Birmingham in January 2000, *Lighten our Darkness*, was particularly useful in addressing the final stages of Mycenaean contact with the western Mediterranean. *SOMA*, Mycenaean Seminars and BSA Upper House Seminars have all helped increase my understanding particularly of the indigenous cultures in the areas under study.

2. METHODOLOGY

The concept of acculturation was already familiar in the ancient world, as Tacitus comments in the *Agricola* (21.2) in a classic observation of the relationship between a dominant power (Rome) and a recently conquered people (the Britons).

> *Gradually they were led astray by the attractions of vice – the colonnade, baths, elegant banqueting. In their ignorance they called it 'culture', when really it was part of their enslavement.*[1]

While his observations were always penetrating, his perspective was that of a member of the Roman aristocracy and his understanding of the principles of anthropological study empirical.

2.1 INTRODUCTION

Nearly a millennium and a half earlier, without textual evidence or contemporary accounts, the starting point for any study of relationships between the Mycenaean heartland and the regions around its periphery, is the material evidence provided by settlements, by burials and other types of site (i.e. anywhere there are traces of human activity), by the variety of artefacts, imported, imitated or purely local in concept and manufacture and by the apparent changes in this material culture, whatever the cause. Needless to say, the quantity and quality of this evidence is very variable, whether as a result of the quality of research and reporting, or, even more crucially, as a result of the accidents of preservation and discovery (3.3). In interpreting this evidence a careful path must be steered, as with Scylla and Charybdis, between excessive caution which prevents any conclusions being drawn about the impact of Mycenaean[2] contact and the over-enthusiastic assumption that this impact was responsible for all changes.

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[1] paulatim discessum ad delenimenta vitiorum, porticus et balineas et conviviorum elegantiam idque apud imperitus humanitas vocabatur, cum pars servitutis esset.

[2] The term Mycenaean as applied here and throughout this study signifies an individual or group of individuals originating in the area of mainland Greece and the Aegean islands without intending to imply that the people who shared the culture we call Mycenaean in this region are ethnically homogenous or create an identical material culture. Any other term seems too clumsy.

Understanding the character of any society on the basis of its material culture is both complex and speculative (Hodder 1999, 66-79; Hodder & Hutson 2003, 166-170; Jones 2002, 63-82). Society, as famously interpreted by Margaret Thatcher, is no more than a group of individuals. "There's no such thing as society. There are individual men and women and there are families."[3] The nature of society today, or in the past, is constantly discussed from viewpoints that are as much political as theoretical (Ingold 1996). The perceptions and reactions of any individual to their environment, whether this is in a static state, subject to cyclical processes or in a state of evolution, are individual. No society, however, would exist if there were not stronger common bonds or interests than differences. Current anthropological (and consequently archaeological) debate has emphasised the importance to any society or community of the 'other' (Pálsson 1993, 1-14). Recognition of this 'other' is part of the essential process of self-definition of identity (Hall 1989, 1-2; Hartog 1992; Cartledge 1993; Dench 1995; Marshall 1998, 49-63) whether this relates to individuals or to communities. In examining the material remains of any past society, the first step in interpretation thus lies in recognising patterns of similarity and difference which can then be explored in terms of the processes by which these patterns came about (cf. Hodder & Hutson 2003, 173-183; Bartel 1989, 176). In order to do this the *resolution* of the picture which is being examined must first be determined.

This can be set at three different levels. First, individual object or finds; second, single sites or find contexts where there is a substantial number or variety of different finds and third, regional studies including a variety or sites and find contexts.

The examination of individual objects independently of each other (individual swords, for example) precludes the emergence of any pattern (cf. Jones, 2002, 11). It would be better to examine groups of sites or major find contexts as separate complexes of discoveries. In this way comparison between coastal and inland sites, for example, would theoretically be possible. In terms of the available evidence in the regions of this study, however, the majority of known find spots would have to be excluded because they do not provide a sufficient variety of evidence to enable a pattern to be discerned and compared. It is more practical to treat each region as a whole, which, while fully acknowledging that this will obscure intra-regional variation, at least has the merit of allowing all the data to be incorporated and its significance assessed. It is the latter approach which has been chosen in this study, treating for the purposes of analysis, six major geographical regions where evidence for Mycenaean contact is strong (Sardinia, Sicily, southern Italy, Epirus and Albania, Macedonia and Western Anatolia), which

each, internally, show broadly common characteristics. It will be possible in the future, as additional data becomes available, to subdivide regions on geographical or functional criteria.

In the same way, it would be possible to treat separately each short sub-period of the 500 years or so in which Mycenaean contact developed, but this would create the same issues of fragmentation of the evidence and might well preclude any unified perspective of the progress of acculturation. The changing level of influence as marked by pottery is charted in Chapter 4 (4.3.7) and any significant changes in the pattern or strength of this influence are discussed in Chapter 5. Given that the impact of Mycenaean contact becomes progressively stronger from the 15th to the 13th century (e.g. in Sardinia, Table 4.7 and Anatolia, Table 4.14), it is natural to find that much of the evidence derives from the later part of this period. Any bias provided by inclusion in the overall picture of the earlier stages of contact is outweighed by the quantity in the later stages. Where particular sites or finds provide exceptions to the overall patterns they will, of course, be highlighted in discussion. In the same way, the enduring impact of Mycenaean civilization may best be seen in the 12th century (e.g. southern Italy, Table 4.10) or even later when, after the collapse of palatial centres, the heartland loses its dominant role in cultural diffusion. In Macedonia, for example the technology adopted for the manufacture of wheel-made pottery remained in use into the Protogeometric period (Jung 2002, 226-229; Buxeda i Garrigos 2003; Andreou 2004).

Even with this broad focus, it is essential to provide a common framework for the objective recording, classification and evaluation of the available evidence and one which is capable of containing, without revision of the structure, additional data. The method chosen uses the principles of cultural domain analysis as developed by anthropologists (2.7).

The evaluation of the significance of different kinds, frequencies or quantities of evidence, *e.g.* the patterns which emerge when they are mapped systematically, depends on the use of appropriate models of social and economic interaction between different communities. Such models of interaction, reflecting different degrees of acculturation, provide theoretical frameworks to be applied to the data set (2.7). They must, naturally, take into account the causes of the contact and the processes by which its impact is received (2.6), as much as the geographical (3.2) or cultural parameters (3.3-3.9) which limit its occurrence and recognise that different processes may result in the same end product as far as the material record is concerned.

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[3] The Interview in Women's Own magazine, October 3 1987

In the case of the relationship between Mycenaean Greece and the regions of contact discussed in this study, two opposite but complementary processes may be occurring. One is proactive – *exploitation* through trade, colonisation and settlement – the other reactive – *acculturation*. Together these processes interact over time to produce different levels of *integration* and *assimilation* according to the social processes (2.6.) by which new artefact types, technologies and concepts are received, modified, exploited or, perhaps often, rejected. Naturally the establishment of intrusive communities, where such existed (2.5), and the strength of their relationship with the 'mother' community are crucial to the strength of the process of acculturation and indeed its direction. The product of this interaction may be reflected in many ways within a society, but in an archaeological, rather than anthropological or sociological context, only a few of the aspects may be detectable – those with durable material remains.

The proximate causes for the development of contact between two societies are manifold. Some of these are accidental or unspecific, but in the context of this study it is particularly appropriate to examine two kinds of impetus: *Trade* and *Colonisation*. *Trade*, which originates in specific economic or technological circumstances, arises from a need for locally unavailable raw materials, from the desire to acquire distinctive finished products, or from the ability to exploit the needs or surpluses of others. It may be unidirectional, bi-directional or multi-directional. *Colonisation* may originate for different reasons such as socio-economic pressures in the 'home' economy or the attraction of potential prosperity in a new setting. At its most explicit, colonisation reflects the desire to acquire territory systematically. While the two have been separated for the purposes of clarity in the discussion that follows, colonisation may occur as a result of trade with specific areas and likewise trade may flourish as a result of the colonisation of a particular centre or centres. It should be noted that even where historical documentation exists, as for the colonisation of Magna Graeca, there is still considerable debate about its causes and nature (Snodgrass 1980, 40-41; Osborne 1996, 119-127).

2.2 ACCULTURATION: THEORY

2.2.1 Principles

The nature of acculturation remains a matter of intense debate amongst anthropologist and sociologists. Terms such as integration and assimilation have often been employed, with too little rigour[4], to define different stages in a progression which is rarely simple or linear.

Anthropologists in America have long been familiar with these terms, which were first used at the end of the 19th century, and the United States has provided many examples of indigenous groups being taken over by incoming foreigners who have settled and often forced minority groups to conform to their ideals and ways of life. Drawing on these studies, the work of Gordon 1978; Appadurai 1986; Padilla 1980 and Arends-Tóth & van de Vijver 2004 have been useful in defining the terms for modern acculturation studies.

More recently acculturation has become the research interest of a number of medical researchers in the States in an attempt to assess the extent of cultural assimilation amongst Hispanic[5] and Mexican[6] communities in major cities in the States. The questions put to the communities during their research focused on, for example, the amount of time spent in an average week speaking or reading American English, how often American films were watched, what language was spoken in the home or to friends. Further questions encouraged the participants to assess how important it was to preserve their native traditions and social structures. Parallel studies have recently been conducted in the Netherlands on the cultural integration of the immigrant Turkish community (Arends-Tóth & van de Vijver 2004).

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[4] It should be noted that not all discussions of the theory of interaction use the terms acculturation and assimilation in the same way, although there is little disagreement about the component elements. Okun (1989, 23-25), for example, treats both assimilation and acculturation as *processes* of which assimilation normally occurs first. She also distinguishes between the transfer of objects (assimilation) and the objects and concepts related to them (acculturation). While these are perfectly valid distinctions it would be helpful if an agreed terminology could be established. In this study acculturation is used for a process and full assimilation denotes completion of the process.

[5] See Solis, J.M., Marks, G., Garcia, M., Shelton, D., Acculturation, access to care and use of preventive services by Hispanics: Findings from HHANES 1982-1984, *AMJ Public Health* **1990; 80** *(Suppl.), 11-19* for the methods involved in measuring acculturation used in the Hispanic Health and Nutrition Examination Survey (HHANES).

[6] The most comprehensive measure of acculturation for use with Mexican-American populations was developed by Hazuda, H.P., Stern, M.P., Haffer, S.M., Acculturation and assimilation among Mexican Americans: scales and population-based data, *Social Science Quarterly* **1988, 69,** 687-706. Hazuda's scales are based on the theoretical model that acculturation is a multi-dimensional process that involves language, cultural beliefs, values and the integration of the minority group into the social structure of the majority group.

These two sets of case studies illustrate in a modern, or near modern, context:
a) the integration of native populations to the culture of dominant newcomers who may be few in number, but economically or politically advanced.
b) the gradual absorption of immigrant groups by the majority community. Such immigrant groups may have offered cheap labour, special skills or potential or simply arrived as refugees.
c) A third situation where acculturation may take place has not been investigated as extensively. In this situation social groups of equivalent 'potency' co-exist and eventually integrate. Examples could be drawn from the east coast of the United States where many different groups of European immigrants have combined since the end of the 19th century to create a distinctively new society.

The nature of acculturation requires the interaction of at least two autonomous groups and results in change in either or both, though in practice one will dominate (Winthrop 1991; see also Broom *et al* 1954, 974; Redfield in Padilla 1980a). As studies of modern examples of acculturation have shown, the element of choice is paramount, as in the case of immigrant communities to England who choose what and how much to adopt of 'Englishness' (Fox 2004). Berry (1980, 11) suggests in the context of American settlement that in broad terms the progress of acculturation is simple, starting with contact, passing through conflict, while both cultures struggle to maintain the upper hand, fighting for administrative and economic control, ending finally in adaptation. Contact can occur through trade, invasion, enslavement, educational or missionary activity (though the last two are, as far as we know, inapplicable to the Bronze Age society). The least acculturation occurs where there is no particular end in mind, for example when mutual trading is sporadic and contact therefore fragmented and short-lived. The most acculturation occurs when there is a deliberate attempt to dominate a society and a systematic attempt to convert the indigenous population to the ways of life of the 'invasive' people, such as is the case with evangelism. This occurs over a longer time span and suggests a much more settled contact, though it should be remembered that acculturation is rarely a one-way process (Lomas 1993, 6-7). Thomas (1996, 114) views acculturation amongst the immigrant populations of the United States as a means to 'homogenize' the minority group in the dominant population[7].

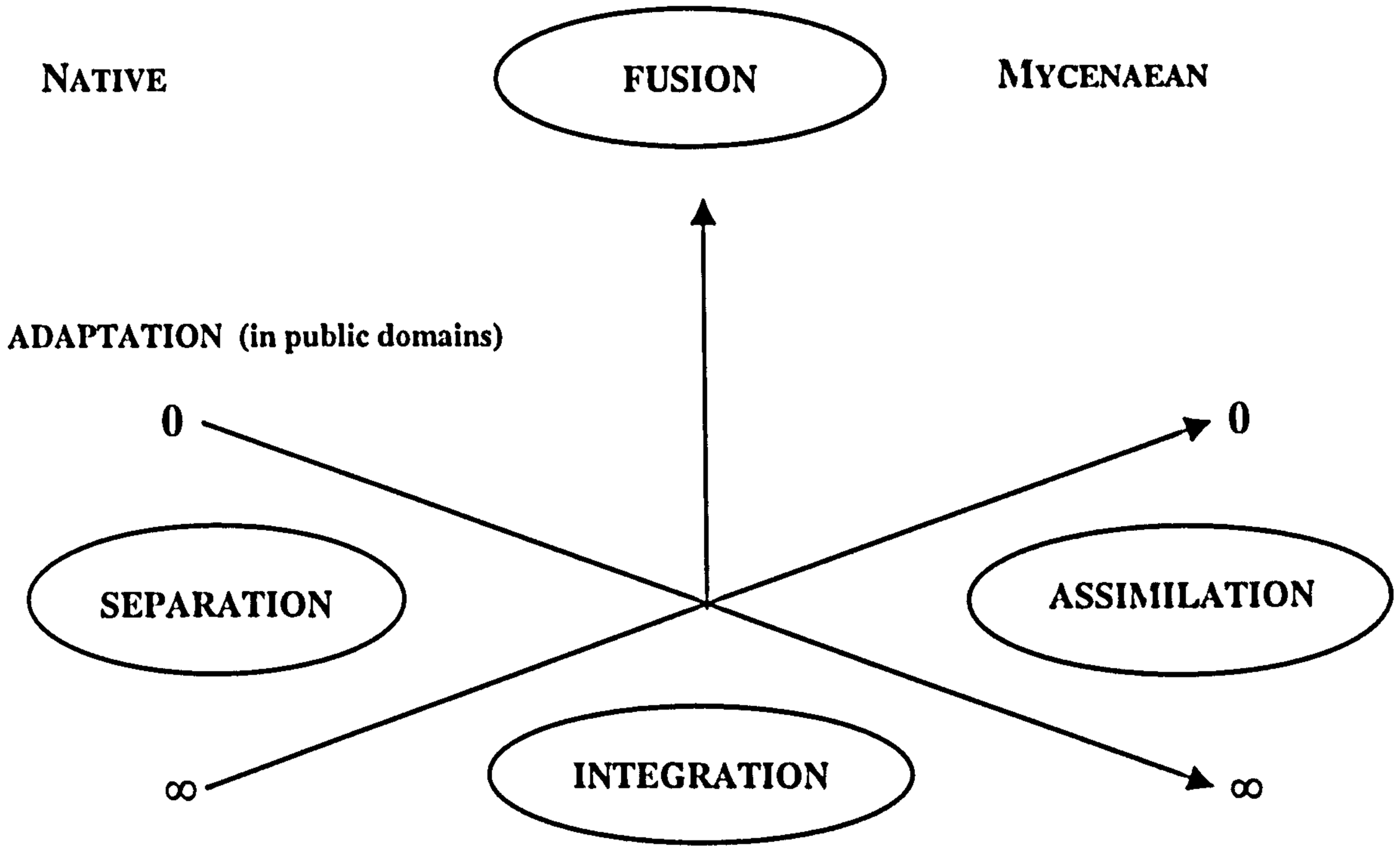
Where indigenous peoples are affected by the contact, whether through trade alone, or by colonisation, the consequent process of *acculturation* may result in changes to the material, economic or social culture. Acculturation itself can describe the process of any contact which results in the adoption of one or more foreign concepts into a local society,

[7] This had indeed already been noted in the 1940's by Kroeber, who further added that acculturation was a process that happened to a whole culture (1948, 425).

but it is multidimensional and has various levels of adoption which can be explained by the terms *Integration* and *Assimilation* which define the extent to which acculturation is complete.

The opposite process can take place and results in the absorption of newcomers into the native culture. This certainly occurs amongst the Turkish immigrant population in Holland, the subject of a valuable analysis by Arends-Tóth & van de Vijver (2004) who have set out very clearly the basis for discussion and analysis. They classify studies according to whether they consider acculturation models as *unidimensional*, which 'conceptualises cultural maintenance and cultural adaptation as polar opposites', as *bidimensional*, where 'maintenance and adaptation are ... independent', or multidimensional which they term the *fusion model* which 'mixes both cultures in a new integrated culture'. In the bidimensional model 'four acculturation strategies, namely integration, assimilation, separation and marginalisation' can be accommodated (Arends-Tóth & van de Vijver 2004, 20-21). A further distinction they make is between studies which consider a limited number of traits (domain-aspecific) and those which examine domains: 'domain specific models examine domain differences in acculturation. These models are based on the assumption that an individual's preference for adaptation and cultural maintenance may vary across life domains' (Arends Tóth & van de Vijver 2004, 21, citing Keefe & Padilla 1987; Kim *et al* 2001).

FIG 2.1 ACCULTURATION: A MULTIDIMENSIONAL MODEL



This diagram assumes that a native population is adopting Mycenaean habits in different domains on a scale of nil (0) to total (∞). The equivalent processes would take place in reverse if Mycenaean settlers were being assimilated into the native population. In practice exchanges are reciprocal and the resultant fusion creates a new cultural entity with characteristics drawn and developed from both parties.

Integration implies a movement to becoming an integral part of the larger social framework with some maintenance of key features of cultural identity (Plog 1974, 57-60, 65-66); Arends-Tóth & van de Vijver 2004, 21).

Assimilation is the complete adoption of a foreign lifestyle by relinquishing cultural identity and accepting the customs of a more dominant society (Berry 1992; Thompson 1996, 113; Arends-Tóth & van de Vijver 2004, 21).

Separation indicates a positive desire to preserve the minority culture, while rejecting that of the majority (Arends-Tóth & van de Vijver 2004, 21).

Marginalisation amounts to the rejection of both cultures (Arends-Tóth & van de Vijver 2004, 21).

Assimilation might be achieved in two ways as explained by Berry (1980, 15). The first, achieved through voluntary means, is termed by him the 'melting pot', while the latter, achieved through force and coercion, he defined as the 'pressure cooker'. These terms are somewhat misleading in the context of acculturation, as 'melting pot' suggests more of a mixing of different groups, for example the combination today of all that makes an individual English and all that makes him or her Greek, the result being somewhere in between the two. In practice an individual may never fully assimilate into a society, particularly if assimilation occurs through duress, as the retention of cultural identity is an important aspiration in human life (Arends-Tóth & van de Vijver 2004, 25-26, especially regarding religion). Successive generations, however, may well be completely assimilated according to the strength of social and economic pressures to conform (Arends-Tóth & van de Vijver 2004, 31, Table 5).

How far can these modern concepts be applied to societies where only the material remains can be interrogated, as is the case with the second millennium BC in the Mediterrranean? By turning to a pair of contrasting modern examples of acculturation it is possible to see the differences between *integration* and *assimilation* as they might be reflected in the material culture.

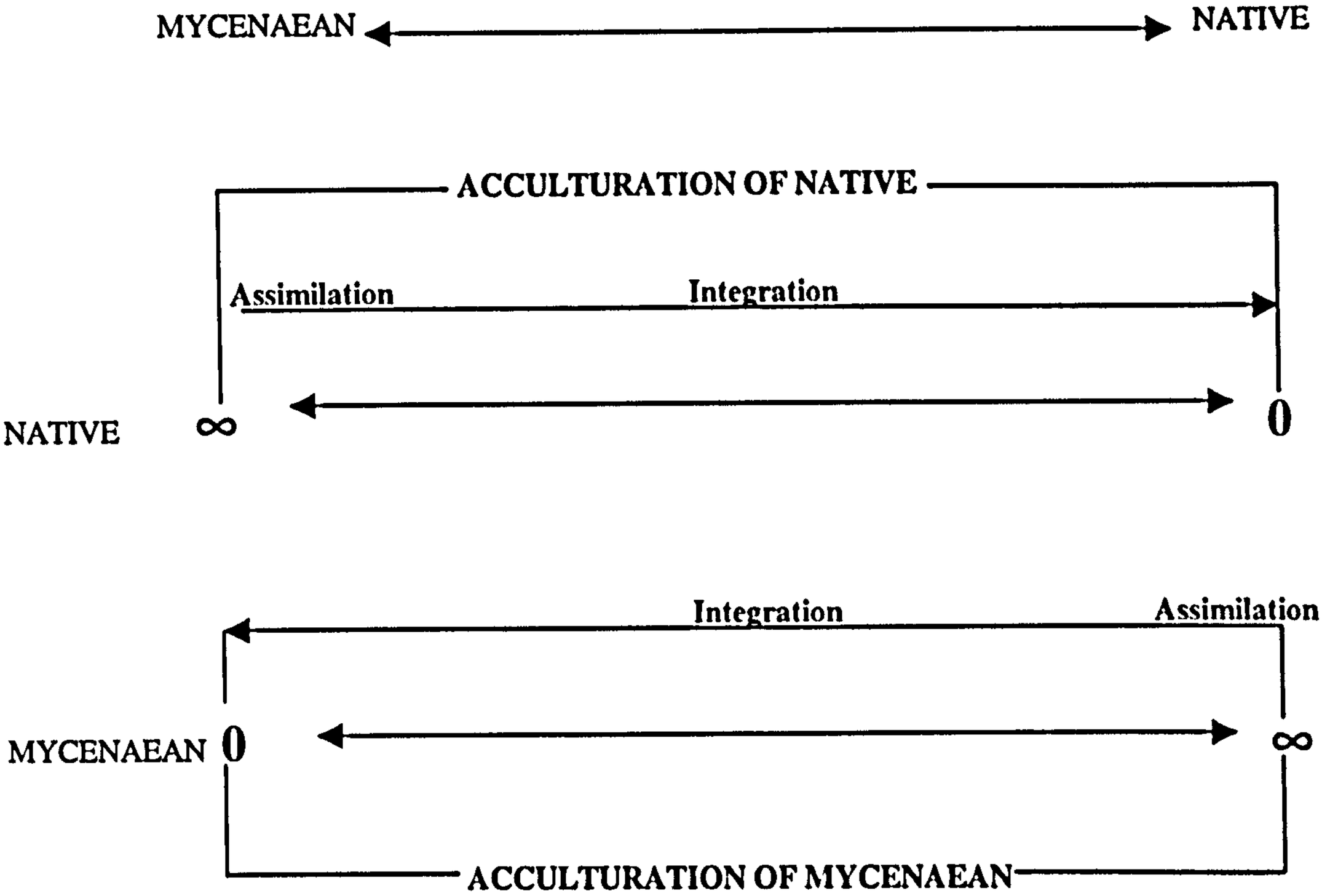
The Jews offer a perfect example of modern integration. While French Jews live an essentially French life, using on the whole French produce, they remain Jewish in religion, customs and diet. In their houses, if they are keeping to the Hasidic code, they would have two sinks, and two sets of kitchen equipment according to their religious practices, but the plates, knives and forks will be largely of French manufacture. *Assimilation* on the other hand does not permit this dual nationality[8] since it is only possible if a Jew gives up all his or her religious practices and dietary proscriptions.

The Sarakatsani were, until the 1940s, a nomadic Greek tribe, wandering the mountains in Greece, Albania and the southern Balkans, speaking an archaic form of Greek and iuwearing a distinctive and completely distinct set of clothing. Since they have settled they have become assimilated to such an extent that it is possible to sit at a table in Greece and not realise from their dress, manners or speech, that some of the company are Sarakatsani. They are no longer distinguishable, having lost many of their customs

[8] The Jews represent perhaps the only group who are regarded (and regard themselves) as a nation, even without a state to which to belong, as was the case before the establishment of Israel in 1948. This is illustrated in Turkey in 1972, when a member of the British Archaeological Institute at Ankara applied for her residence permit. Although a British subject, the entry under nationality (*milayet*) made by the Turkish authorities, just as it would have been by their Ottoman predecessors was 'Jew'. This reflects the Ottoman division of the population into *milayets* based on religion (Islam, Jew, Christian etc (pers. comm. Dr. E.B. French).

and habits when they settled permanently and many now rely on the efforts of foreign research to tell them about their past. It is, however, interesting that they have retained an element of their identity in that they tend to marry others of Sarakatsani descent, though this may be a result of their settlement together in specific areas.

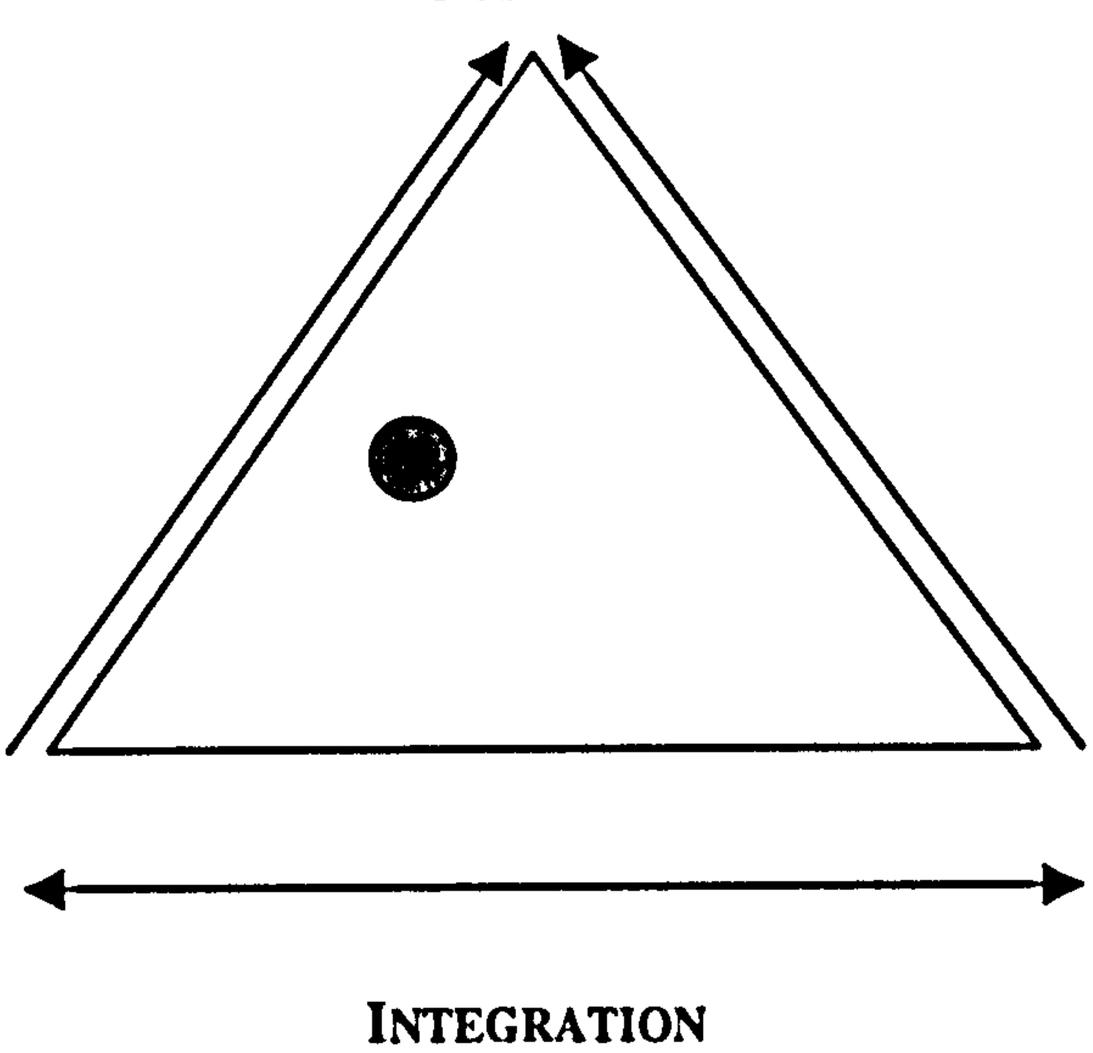
FIG 2.2a THE STAGES OF ACCULTURATION: A LINEAR MODEL



Clearly not all the concepts of the processes of acculturation as just defined will be detectable in the archaeological record. In practice, even in anthropological studies, maintenance and adaptation are only studied by separating activities into different domains, in each of which the process is effectively linear. The proportion of the domains, which demonstrate maintenance or adaptation respectively, allow an overall assessment to be made (Arends-Tóth & van de Vijver 2004, 26, Table 2). It is just as appropriate to treat each of the domains represented in an archaeological context by material evidence on a separate linear scale. The cumulative effect of acculturation in each of the individual domains is illustrated in the diagram above from one extreme, the acculturation of a native, through contact with Mycenaeans to the other extreme, that of a 'Mycenaean' becoming absorbed into the native community. In the diagram these extremes are indicated as zero (0) and infinity (∞).

Naturally this is a simplification of processes which can have a variety of complex outcomes. These could notionally be expressed as in the following figure where the circle maps the vectors of integration (exchange of habits) and fusion (combination of habits), but the quantitative information necessary to calculate this is rarely available through the material record alone.

FIG 2.2b THE OUTCOME OF ACCULTURATION: A BIDIMENSIONAL MODEL



2.2.2 Previous applications to archaeological contexts

Acculturation thus involves the adoption of features specific to another culture, whether in the form of objects, of technological advances (in architecture, agriculture and weaponry, for example) or cultural and social innovations in different domains of social activity. In an archaeological context only some of these features will be recorded in surviving material remains, others may come to be inferred, while many aspects are irretrievable without written records or oral tradition. Each item, or class of evidence, should be considered in relation to other aspects of coherent domains of social activity and interaction. The processes of adoption also need to be examined in the light of the likely modes of contact between the two groups concerned and in relation to a scale of criteria which provide indications of greater or lesser degrees of integration.

Archaeologists working in the Classical Mediterranean have been relatively slow to apply the principles devised for other areas and periods of archaeology (*e.g.* Clark 1968; *cf.* Bartel 1989) and some indeed still deride their utility (Boardman 1999, 10; 2001, 34). Recent studies which apply the theory of acculturation to the material record

include such topics as Romanisation in Spain (Fear 1996); Sardinia (Van Dommelen 1998); Daunia and other parts of southern Italy (Torelli 1999; Lomas 1993); Moesia (Bartel 1989) and the upper Rhine (Okun 1989), where, of course, additional clarification is provided by contemporary or near-contemporary textual or epigraphic evidence. It should be emphasised that the cultural identity adopted or created in these cases was not fixed or static, but evolved over time (Grahame 1998, 175). Closer parallels could be sought in the process of Greek colonisation and its interaction with native populations, although here the historical record was only compiled at a later period (Whitehouse and Wilkins 1989; Shepherd 1993; Tsetskhladze 1998).

Studies of the evidence for and processes of acculturation in prehistoric contexts have to date been rather tentative and fragmented: the term is more often applied to situations where individual new artefact or monument types appear in a region and are taken as 'obvious' indicators of acculturation, than to systematic studies which compare overall patterns of material evidence with a theoretical background. The volume *Acculturation and Continuity in Atlantic Europe* (de Laet 1976) for example, contains a variety of studies of individual characteristics. An important advance has been made by Broodbank (2000) in his study of the Cyclades when he considers the processes by which ideas spread between the islands and from Crete to the Cyclades.

In the same way the majority of studies of the acculturation of different parts of the Mycenaean periphery relate simply to the arrival of different classes of objects (van der Leeuw's 'diffusion of objects alone' 1983) and only rarely consider how far these and the associated symbols and meanings were adopted into the native culture systems. This distinction equates to Jones' physical and textual models for considering the archaeological record (Jones 2002, 11-20). Killian (1990) reviewed some of the evidence for acculturation in the regions of this study but from the perspective of Mycenaean colonisation. He assumed that most of these changes and developments were the result of widespread Mycenaean settlement as part of a complex process of expansion.

Wiener (1984, 17) in a study of the relationship between Crete and the Cyclades in LM I addresses the issue of relationships between societies which have a complex administration and wealth of material culture, and neighbours who have yet to reach such a level of sophistication[9]. He contrasts two types of interaction which he terms *karum contact* and *Versailles effect*. The former represents a situation where textual evidence confirms the presence of a foreign colony while the archaeological record

[9] Sophistication in material culture must not be directly equated with sophistication in ideology or social organisation.

shows no trace of it, as was the case of the Assyrian trading colony at Karum Kanesh (2.5.2). The latter is represented by the desire of the elite of a less sophisticated society to acquire the trappings, the material objects, pastimes and even language of a more culturally prestigious society, part of the processes of acculturation. Wiener cites the imitation of the Versailles court in polite society in different parts of Germany in the 17th and 18th centuries to illustrate this process.

He notes that the Versailles effect is 'most likely to occur where the cultural prestige of one society within an interconnecting set of societies is great' (Wiener 1984, 17), a situation that is as true of the relationship between the Mycenaean heartland and the regions under study as that between Minoan Crete and the islands of the Aegean. Following an examination of the distribution of the conical cup form, which he believes to have a religious connection, he concludes that the relationship has a greater impact than would be explained by a Versailles effect on its own, perhaps reflecting the adoption of 'a peculiarly Minoan ritual' (Wiener 1984, 25). Renfrew (1999, 711) accepts that this is a 'useful counterbalance to the world system approach, which lays stress on economic relations of dominance, often with little reference to the symbolic'.

These conflicting opinions reflect differing views about the extent, causes and processes of acculturation, but all have to take into account the spread of artefacts that are recognisably Mycenaean in character, a spread which does not progress uniformly in every area of the Mediterranean region where Mycenaean contact can be detected. There are different levels of acculturation (or lack of it) which must be considered. Potentially, the extremes are easily identified. At one end of the scale, assimilation suggests a complete adoption of, say, Mycenaean fashion, technology and ideology in all life domains in other words becoming 'Mycenaean' in the fullest sense. At the other end of the scale are those who have never, in any way, come into contact with Mycenaeans or any of their artefacts.

As already stressed in the introduction, it is *changes* in individual domains of social activity which are *potentially* significant as indicators of the impact of Mycenaean influences where they coincide with tangible evidence of Mycenaean contact. For example fortification is a practice adopted for defence at many different times and places and for many different reasons. Where its appearance coincides with the arrival of other Mycenaean elements the case for this appearance as a result of the contact must be considered seriously.

Changes in the material culture of each of the regions under study need to be examined with care and all likely causes for these changes must be considered. This can only be

accomplished effectively once the question has been addressed of how local societies in each area under study developed and interacted (see Chapter 3), since the impetus for change should first be sought within the indigenous culture (Arafat & Morgan 1994, 130). The contemporaneous appearance of foreign concepts of architecture or artefacts such as pottery, might indicate that the establishment of regular contact with a foreign group inspired these changes.

The archaeological record constitutes only the surviving material remains, which are the sole evidence for the progress and extent of the process of acculturation. Many aspects of this process may never be recovered in this region (or indeed in any other where written sources do not exist) and some can only be inferred tentatively through the use of parallels from other periods and cultures. While, inevitably, the determination of an absolute assessment of the level of acculturation is subjective and, as already noted, has been differently evaluated by scholars working in each of the regions, it is possible to suggest objective criteria for the classification of the surviving remains representing different cultural domains which should assist with the determination of relative levels of acculturation in each of the regions studied (2.7).

> *'A considerable part of the network of relationships through which meanings were created in the past is directly accessible to us in the present in the form of archaeological evidence. That evidence is unavoidably recontextualised in the present, and in working the connections which spread out from ancient artefacts we produce an interpretation which is of and for the present. But it is an unhelpfully nostalgic position to hold that since past minds are unavailable to us, archaeological evidence is meaningless'* (Thomas 1996, 238 after Shanks and Tilley 1987b).

2.3 TRADE: CONCEPTS

2.3.1 The character of trade

Trade is an important stimulus for social development and change (Pydyn 1999, 7) since it provides opportunities for a less sophisticated society to acquire the trappings of a more sophisticated neighbour, the 'keeping up with the Joneses' of the 20th Century A.D. In the words of R.G. Ingersoll 'commerce is the great civiliser. We exchange ideas where we exchange fabrics' (Sabloff & Lamberg Karlovsky 1975, vii).

Trade may include exchange, the transfer of commodities, staples or finished products, for something of equivalent value. In the modern world trade is largely an economic activity bound up with supply and demand, with designated markets worldwide and with profit, a *commercial* trade. Can this concept in any sense be applied to the Bronze Age Aegean? Was the movement of Mycenaean goods to Italy or Anatolia evidence of specialised production for export? Or are *non-commercial* forms of trade such as reciprocity or redistribution more relevant in this context? (Polanyi 1957). It will be helpful to examine the differences between these concepts before examining the mechanisms by which trade occurred in the Mediterranean context (2.4). Value, of course, may be conferred as much or more by prestige as by strictly utilitarian function (2.3.6).

2.3.2 World Systems theory

The world system approach was developed by Wallerstein to describe the complexities of modern economics since the 16th century AD, where a multiplicity of countries interacted to favour efficiency of production in contrast to 'relatively small highly autonomous subsistence economies' (Wallerstein 1974, 347-348; McNeill 1993, xi; Frank & Gills 1993, xx-xxi). World economies are 'themselves characterised by division into core states and peripheral areas' (Champion 1989, 6). The core is characterised by 'sophisticated economic institutions which enable it to extract surplus from the periphery' (Champion 1989, 6).

This approach has also been applied to ancient societies and archaeological evidence to take account of a variety of cultures and economic conditions (McGuire 1989, 42-44; Edens 1993, 30-31; Frank & Gills 1993, 18-21; Pydyn 1999, 12), and is indeed also

appropriate to the Aegean and eastern Mediterranean from the Early Bronze Age (Broodbank 2000, 47) and (with a reversal of roles) to the central Mediterranean and the Aegean in the Late Bronze Age (Kristiansen 1998, 287-289, 302-305, Kardulias 1999). In this approach it may be expected that every aspect of social and economic activity interacts within the community with every other aspect and, beyond the community, with the social and economic activities of other regions. In addition it emphasises that every archaeological 'snapshot' of such activities derives from past events and influences future events.

Although Renfrew advised caution in applying the principles of world system theory too narrowly, properly applied it should examine, *inter alia*, the nature of consumption and the meanings that exotic commodities have for those who acquire and use them (Sherratt & Sherratt 1998, 333). These authors also insist that the 'economic systems of the ancient world were just that, ancient, not primitive', and that distinctions between economics, culture and ideology are artificial. While Sherratt and Sherratt focus in their paper on interaction in the eastern Mediterranean, their argument is equally applicable to interaction in the central Mediterranean by the 14th and 13th centuries BC.

2.3.3 Commercial trade

In antiquity this has been defined as 'the purchase and movement of goods without the knowledge of or identification of further purchasers' (Snodgrass 1991, 15). This is *speculative trade* in which goods could be moved without prior arrangements having been made for their distribution. Goods would in this case arrive at a destination and then be exchanged with a buyer offering the most advantageous 'price' (however this might be calculated in the absence of monetary tokens). The process by which such trade occurs requires in most cases the intervention of a third party between producer and purchaser. Market exchange in antiquity as set out by Polanyi (1957, 150) presents a different picture.

Commercial trade he argues, is carried out on mutually agreed prices, confirmed before transportation, though this may not necessarily be restricted to monetary exchange. The range of commodities available for exchange is unlimited as market trade operates on a supply and demand basis. One of the explanations of the varied cargo on board the Kaş wreck was that it was destined for a palace centre and was fulfilling an 'order' placed before departure of the vessel (Cline 1994, 101). It therefore does not seem inconsistent to allow that both these definitions form part of the picture of commercial trade during

the Late Bronze Age, and it is arguable that this trade began at least as early as LMI-II in Crete, for example (Cline 1994, 92).

Possible indicators of commercial trade (where precise value is more important than in other forms of trade) might include lead balance weights such as those found at Ayia Irini (Caskey 1971; Petruso 1992, 21-36), Phylakopi (Bosanquet & Welch 1904, 192) and Akrotiri (Marinatos 1969, 49). The Pylos tablets have also provided information on a possible commercial element of trade. The word *o-no* has been identified with the later Greek term ονος (an ass) and could have been used to indicate a measure equivalent to the load carried by an ass, but there remains some doubt about the validity of this identification (UN1322, Chadwick 1976, 157).

The existence of commercial trade is demonstrated by documents found at Ugarit which show that around 1300 BC independent or semi-independent professional merchants existed there. Tablet 93 (PRU VI, 93; RS.17.131) lists 74 people by profession of whom five are identified specifically as merchants – 'Tamkaru'. These tamkars not only served as money lenders, using their own resources of silver, but records show that their taxes were paid out of income from their private trading enterprises (Wijngaarden 1999, 7). Tablet 30 (PRU VI 30; RS 18.500) also states that on occasions, presumably as needed, individuals were appointed to the office of merchant, given land by the King for the duration of their service, and operated within confines of the palace hierarchy (Heltzer 1978, 123). This is further confirmed by a letter from Amarna where the ruler of Alašiya asks the Pharaoh to allow his messengers to leave Egypt without further delay, because they were also merchants (Letter EA39; Moran 1992,112).

Such evidence demonstrates the existence of commercial trade within the eastern Mediterranean sphere on a systematic and regular basis. Although there is no direct documentary evidence for the nature of trade in the central Mediterranean it may well be reflected in items which are standard and regularly appear in the record, such as oxhide ingots (see 5.1.7) or those commodities which are ephemeral and indicated by the evidence of the tablets and other finds, such as perfume, oil or wine. Pottery for its own sake or used as containers may also be a useful indicator of commercial trade. The majority of the Mycenaean pottery found in the central Mediterranean, northern Greece or Anatolia is purely utilitarian in shape and very little is distinguished by quality or decoration, except in contrast to local fabrics, to which it may have been preferred on grounds of fashion, use or content. Small closed pots or large pithoi are most likely to have been imported for their contents (see Chapter 6). Open shapes, such as the group of Vapheio cups from Vivara, all decorated in much the same manner, may have been supplied, even ordered, in bulk to serve a specific function in the local context (which

need not have been the same as that envisaged by their makers, Marshall and Maas 1997, 277-278). The distribution of different pottery shapes is examined in Chapter 5 in order to establish the general trends, region by region, as a basis for understanding its impact in each area.

It is likely that wherever trade is largely and regularly conducted along maritime routes as between the Aegean and central Mediterranean, that it would have been in some sense commercial since considerable resources are necessary to build (or replace) and crew a ship which can only be recouped through the element of 'profit' in such trade. Ships might be built for defensive purposes but could hardly fulfil these if absent from their home port for months on end.

2.3.4 Reciprocity

The exchange of items of value such as gold or amber as much to maintain political alliances (Polanyi 1975, 149) as for material profit is an accepted definition of reciprocity or 'gift-exchange'. Indeed in anthropological terms it is defined as 'I give to you, so that you benefit and I lose, but in the expectation that you will return the favour' (Layton 1997, 173). In socio-ecological studies reciprocity can be linked with altruism, whether dealing with human or non-human species, where successful individuals share this success (in hunting for example) with unsuccessful individuals in an instinctive desire to preserve another member of the community and thus improve the survival chances of the community as a whole (Layton 1997, 175). In the Bronze Age Mediterranean reciprocity has usually been discussed as a minority activity between the elites of different societies (Branigan 1982; Cherry 1986, amongst others). Although those involved in this exchange were limited to those in the upper echelons of society, it does not follow that this activity only involved a small quantity of goods. As the late 15th century BC tomb paintings of Rekhmire illustrate, the quantity of goods coming from Keftiu (Crete) that are conventionally presented as gifts or tributes – *inw* – is substantial (Davies 1935; Cline 1994, 86).

There are many indications in the documentary evidence recovered from the trading port of Ugarit of a lively and flourishing gift exchange at the highest levels of society (Schaeffer 1970). No 7 is a double letter written by a mother and brother to another brother:

> *Here is a fine mare which I am sending as a present for my brother. If my brother says, 'Why have you not set the price for this mare lower?', then let my brother send me thirty shekels of silver and one alallu of bronze. Send me some more messages from my brother! Let them not cease to come and I shall not cease to send fine mares to my brother.*

In the mother's message we discover that she has sent her son a shawl, an embroidered belt, two {object unidentified} and a hundred shekels-worth of red-dyed wool. She ends very candidly – '*As I want silver, let my son send me a lot of silver. Do not send me a little!*' It is clear that this cannot be considered in the light of commercial trade as discussed above, as there is evidently no fixed price – indeed it is laughably vague in the mother's case. Wool, which according to the Linear B tablets at Knossos was produced at such a level that it may well have been destined for export (Ventris & Chadwick 1955, 263; Killen 1964, 67; Halstead 1988, 526; Hooker 1987, 315) and most probably to Egypt, is frequently requested, as in this letter.

Homer too, cites many examples of gift exchange. The information must be used cautiously, as it is difficult, if not impossible, to give the episodes an historical context, but it can still offer some glimpses of accepted etiquette. Included among the descriptions of gift giving in the *Odyssey*, is a silver basket belonging to Helen, which was 'once given by Alkandre, the wife of Polybos, who dwelt in Thebes of Egypt' (*Odyssey* IV 123-127). This highlights another aspect of this form of exchange, that women too played a significant role in this non-commercial trade.

Actual examples of gift exchange in the archaeological record are difficult to identify, but it is thought that the hoard of oriental seals from Thebes and the faience plaques with cartouches of Amenophis III discovered at Mycenae could well be examples of diplomatic gift exchange (Peltenburg 1991, 168; Halstead 1992, 64).[10]

While gift exchange contrasted with commercial trade, it is worth considering that perhaps in the case of the transactions recorded in the Amarna letters, gift exchange was really a metaphor for commercial trade (Cline 1994, Catalogue I). This corresponds to Polanyi's definition of administered or treaty trade which is conducted for the purpose of furthering political ties. He sees this as necessarily operating through governmental or government-controlled channels as distinct from 'gift exchange', which is the purest from of reciprocity, requiring no particular administration (Polanyi 1957, 149). Any exchange under this guise, for the purposes of furthering political alliances is, by

[10] The discovery of one of these faience plaques in the Room with the Fresco at Mycenae is of particular interest since these objects, although more commonly of bronze, would be used as dedicatory offerings at temples in Egypt, often found buried under the corner foundations.

definition, a form of commercial trade. It requires a relatively stable political group through which the trade is administered. Any arrangements made would require a fixed destination where the exchange can be regulated (Polanyi 1957, 149). Indeed Zaccagnini (1973, 117-121) argues that the system of ceremonial exchange had acquired many commercial elements in the Late Bronze Age Aegean. Wijngaarden (1999, 7) further argues that silver, a commodity which is mentioned frequently in the letters, was indeed used as a standard of equivalence in this type of trade.

In the context of maritime trade in the Central Mediterranean, gift exchange is perhaps only marginally relevant. Even where items appropriate to gift exchange have been identified, it is likely that they were carried on ships trading commercially. The contents of the cargo of the Ulu Burun and Cape Gelydonia ships suggest that these prestige objects often accompanied other commercial goods and textual evidence supplies many examples of merchants acting as diplomatic emissaries on behalf of the local rulers.

2.3.5 Redistribution

This can take a number of different, distinct forms. At one end of the spectrum palatial centres may be responsible for collecting excess produce and skilled personnel from particular locations or individuals which would then be literally redistributed where needed. Renfrew indeed sees that the environment of Greece favoured local agricultural specialisation and a palatial elite emerged as redistributors of this produce (1972, 288-297). At the other end of the scale the palatial redistribution was simply a way for resources to be amassed for consumption by the elite and their servants (Halstead 1992, 57; Cherry 1978; Gilman 1981; Renfrew 1982). Linear B archives found at Knossos and Pylos illustrate clearly that Mycenaean palace administration had as one of its major concerns the accumulation and redistribution of various staples, such as wheat, as well as manufactured goods, such as cloth (Schallin 1995, 45). Indeed the evidence accumulated from the Linear B archives, which consist mainly of inventories of palatial resources in goods, land and personnel and the movement thereof, indicates 'a massive redistributive operation' (Finley 1957, 135).

Four principal types of transaction may be assumed from the archival evidence of the Linear B tablets – taxation, agricultural production, the maintenance of palace staff by means of payment for services provided and craft production (Halstead 1992, 59). *Taxation payments* took the form of non-staple goods such as spices, wool, flax, olive oil and honey, amongst others (Killen 1985, 270-1), and are always referred to by some part of the verb 'a-pu-do-si' (αποδίδωμι), in other words given in fulfillment of some

obligatory payment. For the most part it seems that the palace took no part in the production of these commodities.

Agricultural production is represented in Linear B as mostly the production of livestock – sheep, cattle etc. Most of the sheep, for example, seem to have been kept purely for the purposes of collecting the wool as a form of taxation. Of the 80-100,000 sheep documented in the Knossos tablets, 60,000 were reserved for wool production alone (Killen, 1964, 5). Palatial control seems to have extended over the production of crops with management of large estates growing wheat and barley specifically (Halstead 1992, 65; 1999a). No references are made to the cultivation of pulses, which are seen as being produced more by individuals in their 'market gardens' (Glynis Jones *pers. comm.*).

Palatial staff are split into two groups in the Linear B archives: those who are fully dependent and who are supported by rations (Killen 1984, 58) and those who are semi-independent and who receive allocations of land for their services (Killen 1985, 214). *Craft production* as documented in the tablets concerns the measured redistribution of raw materials, such as metal, to craftsmen working in the palace administered areas. Halstead has discussed in detail the occurrence of all these types of redistribution within the Late Bronze Age Mycenaean palatial society (Halstead 1992, 60).

2.3.6 The prestige goods economy

In a prestige goods economy, the value of items is determined by the association they convey with political power (Pydyn 1999, 10). Access to such goods, which derive from outside the resources of the community, is controlled by elite, usually male, members of the group. As such they become essential to the demonstration of social status in a variety of theatres of performance such as births, marriages and death. Possession of these items has nothing to do with utility but is a mark of admission to the elite group, and the leaders of the group are able to exploit the resources of the group to acquire them, creating an asymmetrical economic system that has the effect of bonding members of the elite to those dependent on them for favours. In origin these links may be kinship-oriented but they rapidly spread and may well develop hierarchies of social and thus economic dependence (McGuire 1989, 48-51). The presence of distinctive imported items which do not seem to have any practical function, or are excessively elaborate for their apparent function may betray the existence of such types of economy, but does not preclude the existence of parallel economic mechanisms in other domains of activity.

2.3.7 The character of trade in the northern Aegean and central Mediterranean

Evidence for the processes of trade in these regions is necessarily much more limited than that for trade in the Mycenaean heartland or in the eastern Mediterranean and the practices can be no more than hypothetical. In the heartland within the political, economic and social control which the Palace systems operated, trade seems to lie most comfortably within an economy that utilised both *reciprocity* and *redistribution*. Their external needs, such as the import of copper and tin, forced these societies to accommodate an economic system of commercial trade compatible with the concepts of *exporter/trader* as proposed by Gillis (1995). In all probability many different modes and levels of exchange must have existed contemporaneously to accommodate the different needs of the Mycenaeans and the differences between the societies with which they came into contact. Without the benefit of written evidence, identification of any single item involved in gift exchange is hard, if not impossible to justify, but we have no way of telling how extensive the practice may have been.

In the case of Aegean relations with Italy and Macedonia, the most probable type of trade is commercial, while any gift exchange that may have taken place is most likely to have occurred in this context rather than as a separate process. In Epirus and Albania it may be more appropriate to consider the operation of a prestige goods economy to explain the presence of so many Mycenaean weapons. In western Anatolia there are more elements of Mycenaean culture, indicating some degree of settlement on the coast and therefore more varieties of trade, including perhaps, reciprocity and redistribution.

2.4.TRADE: MECHANISMS

2.4.1 Initial and subsequent trade

One of the distinctive features of Mycenaean trade with the regions of this study is that it is almost entirely dependent on sea routes and maritime contact for its initial stages (Chapter 4). The process of contact between the Mycenaean heartland and peripheral areas is thus a complex product of two sets of factors: first, the social and economic conditions in which it arose, and second, the practical advantages and limitations of the environment in which it was carried out. The process by which this contact occurred can be divided into *initial* and *subsequent* stages which normally interface on the coast at a port of trade (2.4.4).

i) ***Initial Overland Trade***, by which means goods arrived at designated trading centres and pass along fixed land routes, as for example between central Greece and areas further to the north, although it is likely that maritime routes were of more importance even for this region.

ii) ***Initial Maritime Trade***, by which means goods carried by sea enter the territory of a non-Mycenaean culture via a coastal centre, for example Thapsos in Sicily or Antigori in Sardinia.

iii) ***Initial Combination Trade***, by which means goods could theoretically enter the local centres of trade through parallel overland and maritime trade routes. This probably occurs in the case of contact between the Mycenaean heartland and northern Greece. The designated centres of trade at the end of these two parallel routes need not necessarily be the same though the convenient geographical location of coastal centres as primary points of contact would suggest that the overland trading routes might have such a centre as their ultimate destination. Thus just as Volos is a major port today, ancient sites in that area may have been the ultimate destination of both overland and maritime trade routes.

iv) ***Subsequent Overland Trade***, by which means goods were distributed from the initial point of contact to places further inland, as in the case of Sicily or Central Macedonia.

v) ***Subsequent Maritime Trade***, whereby foreign goods enter an already established local inter-island trade or coastal network such as already existed in the western Mediterranean between Sicily and Malta, between Sardinia and the Iberian peninsula or on the Adriatic coast. No Aegean involvement has yet been detected in these networks.

A number of different models have been constructed for the mechanisms of exchange in the European Bronze Age[11] and a full justification and evaluation of them all is beyond the scope of this thesis. The models that are set out below are therefore those that are deemed to be most appropriate to initial Mycenaean contact with neighbouring areas and subsequent distribution of goods or ideas within them.

2.4.2 The Purpose and Process of different forms of trade

PURPOSE	*PROCESS*	
Commercial:	*Maritime:*	*Directional Trade* *Freelance Trade*
	Non Maritime:	*Down the Line Trade*
Non Commercial:	*Reciprocity:*	*Gift Exchange*
	Redistribution:	*Requires colony with Mycenaean-type society*

FIG. 2.3 THE PURPOSE AND PROCESSES FOR TRADE IN THE REGIONS UNDER STUDY.

'*Directional Commercial*' trade, in which specific sites were targeted and frequented on a regular basis (Renfrew 1972, 470-471; 1975, 49) operates primarily as a mechanism for maritime trade in the Aegean context and was very probably under state control. For example, it is now thought that many of the goods exported from the eastern Mediterranean found in the Late Bronze Age Aegean arrived as a result of directional trade of this kind, as it appears that specific destinations were favoured. This can also be seen clearly in a comparison between Tiryns and its surrounding area and Mycenae. Tiryns has large quantities of Cypriot pottery but very little Egyptian material (Cline 1994, 87). The reverse appears to be the case at Mycenae where Egyptian imports are well represented[12] while there are few Cypriot objects. This suggests that particular areas had different affiliations, much as it has been postulated that Kommos on Crete had a direct relationship with Sardinia and Chania with Apennine Italy (Watrous 1987, 1989, 1992, 163-168; Jones & Vagnetti 1991, 131), although provenance analysis has proved that there are almost no Minoan imports. This site-specific trade is not confined to Crete and similar cases can be argued for many other areas under study in this thesis,

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[11] See for example the variety of models for trade illustrated graphically in Renfrew 1975, 42.

[12] Apart from items in tombs there are finds from the citadel such as the small blue frit figurine of a squatting monkey with a cartouche of Amenhotep II found in the vicinity of Mylonas's 'House of the high Priest' and dating to the 18th Dynasty (see Cline 1994, 132 for further bibliography).

particularly for Rhodes, which appears to be exporting material not only to Sicily and Sardinia but also to western Anatolia (see Chapter 6).

'Freelance Commercial' trade involves the transportation of goods by independent merchants or middlemen (Renfrew 1972, 468-470; Kemp & Merrilles 1980, 276-278). Included in this is the 'Tramping' model in which a merchant ship visited a series of ports in a specific order round the Mediterranean (Braudel 1972, 103-108; Muhly *et al* 1977; Cherry and Davis 1982). It has been suggested that the Cape Gelidonya ship belonged to a 'freelance merchant' (Bass 1961, 275-276; 1967, 163) exploiting this type of opportunity.

There is also the likelihood of 'diplomatic' voyages occurring in the Mediterranean from time to time (Renfrew 1972, 472; Branigan 1982, 209; Cherry 1986, 41). In the absence of international laws *gift exchange* was, after all, the only way of establishing and maintaining diplomatic relations between elite groups. This is a non-commercial exchange, which was certainly prevalent in the eastern Mediterranean during this period (2.3.3 above).

'Down the line' trade operates solely within the non-maritime trade network where the quantity of imported goods tails off with distance from the distribution centre (Renfrew 1975, 47 – with particular reference to the obsidian trade in the Near East). In the case of Mycenaean trade with the regions of this study it is only relevant to the subsequent trade, once goods have been landed. It works along the lines of a trader exchanging goods with villagers from Village 1. The goods, less those that are required by villagers from Village 1 are then moved to Village 2 and traded, either by the original trader or by a trader from Village 1 as the diagram below illustrates. The distance between each exchange is determined by the distance an individual is prepared to travel and whether or not pack animals, such as donkeys, are available to carry the load. As objects are traded at each place of interchange the quantity of the original imported material lessens (and the scarcity value increases).

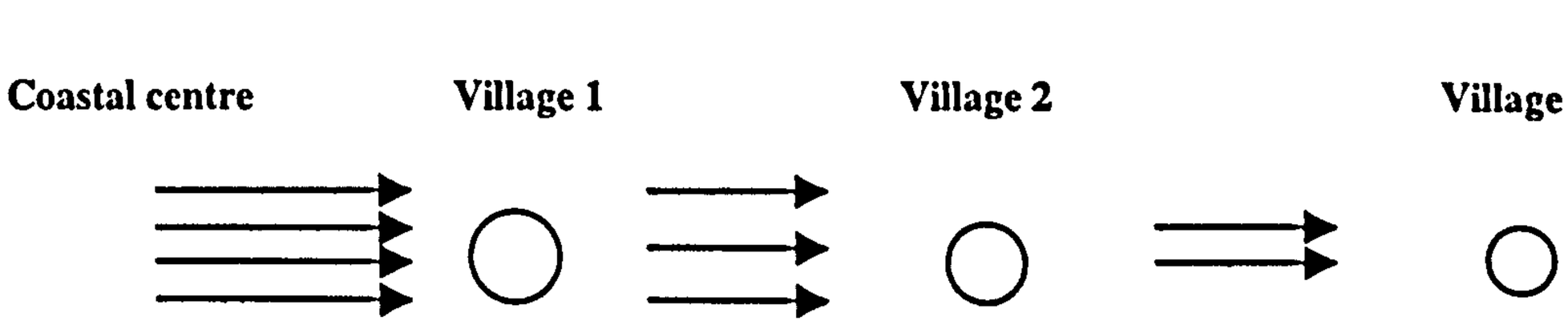

FIG 2.4 THE 'DOWN THE LINE' MODEL

A variant of this model is the *prestige chain network* (Dalton 1977, 197), which has been suggested as a suitable model for the distribution of Baltic amber from Europe to Mycenaean Greece in LH I and LH II (Harding & Brock 1974; Guida 1999, 489) and may be relevant to distribution of Mycenaean swords into the Balkan interior. The *'chaining effect'* – the securing of supplies of raw materials, became the objective of well-placed operators in local exchange cycles. The chain effect links regional systems into larger configurations initially following already-established contact networks, as has been suggested to explain the Beaker groups which reached Sicily in the middle of the 3rd millennium (Leighton 1999, 110-113). By the 2nd millennium a large-scale rationalisation between major producers seems to occur (see e.g. Waldren 1998 on the role of the Beaker culture in the Balearics). This long chain of exchange cycles providing contact between regional areas forms the path along which innovations spread.

2.4.3 Maritime trade and the evidence of wrecks

Maritime trade is only possible where ships are available to reach the primary destination. Large-scale commercial maritime trade would require access to a substantial number of ships owned either by rulers or by individuals whose concern was open-ended overseas exchange[13]. The Ulu Burun (late 14th century BC) and Cape Gelidoniya (13th/12th century BC) shipwrecks are important examples of this kind of trade occurring in the Bronze Age Mediterranean, but many questions arise from these ships that have yet to be answered – what was their final destination? What stage of the voyage had they reached? Was the cargo representative of a single trip to one port or the result of many? Both ships carried copper as a major element in their cargo.

In the Ulu Burun ship were at least 375 ingots of copper, of both oxhide and bun forms, a smaller number of ingots of tin and some others that were already alloyed into bronze (Bass 1986; 1987; 1991; Bass & Pulak 1989; Knapp 1990b). The quantity of raw materials here would be enough to forge some 3000 swords, 3000 spearheads and well over a million arrowheads (based on the weight equivalents suggested by Ventris and Chadwick (1956, 356). What could the possible destination of this cargo be? The quantities are surely enough to equip a fighting force such as one might expect in a palace such as Pylos. The supply of tin and copper (much in the form of scrap metal) on the Cape Gelidoniya wreck (Bass 1967; 1991, 71) is roughly equal to an entire year's

[13] Although theoretically it is possible that trade in the central Mediterranean was instigated by either party, in practice it seems most likely that the ships were 'owned' and based in the Aegean area, if not further to the east.

supply of raw material as listed on the Pylos tablets, while that recovered from the Ulu Burun wreck is equivalent to five times that amount. The origin of the copper is shown by lead isotope analysis to be ores mined on Cyprus (Gale 1991b, 228). While we cannot be sure whether these cargoes were intended for several destinations, or a single one, it is likely that the ships had loaded cargoes not long before and foundered while travelling westwards towards the Aegean (or beyond?).

The only other example of a Bronze Age shipwreck was discovered at Iria off the south coast of the Argolid (Phelps *et al* 1999). The early 12th century cargo was principally of Mycenaean pottery and was presumably destined for intra-regional consumption rather than long-range trade. The presence of some Cypriot pithoi, as part of this cargo, is more enigmatic but it is possible that they were already in secondary use as transport containers (Lolos 1995; Vagnetti 1998c; Phelps 1999). This has already been noted on the Ulu Burun Shipwreck (Bass 1986; Pulak 1997) and fragments of this type of pithoi have also been identified at Antigori on Sardinia (Ferrarese Ceruti *et al* 1987, fig 2.5; Jones & Day 1987, 262 and more recently at Cannatello in Sicily (Deorsola 1996, 1037).

Palatial centres were well equipped to underwrite sea-borne trading expeditions and did so throughout the Bronze Age, as is documented in both the Amarna letters and Near Eastern documents (Portugali & Knapp 1985, 66). The question remains whether the expeditions were private or under the control of the palace administration, as illustrated by the debate over the relative importance of private merchants and state sponsored enterprises (Renfrew 1972, 470; Kemp 1972, 673; Kemp & Merrilles 1980, 276, 278).

The rich cargo of the Ulu Burun ship illustrates the scope of Mediterranean maritime trade in its Bronze Age heyday. Other raw materials in the cargo were glass ingots, unworked elephant and hippopotamus ivory and a metre-long piece of dense unworked African blackwood (or ebony as it was known to the Egyptians: Bass & Pulak 1989, 10).

Large quantities of Cypriot pottery were found, stacked in large pithoi, which would suggest it was a commodity to be traded in bulk. Certainly there is evidence in Sardinia, for example, of Cypriot white slip-ware milk bowls not unlike those illustrated in the Ulu Burun excavation report (Lo Schiavo & Vagnetti 1980, 217-243; Bass 1986, 279). Other finds of pottery included over 100 Canaanite amphorae containing figs, myrrh, frankincense, orpiment, terebinth resin and probably olive oil and wine.

Mycenaean pottery dating to LH IIIA2 and early LH IIIB is present in small quantities (Bass 1989, 24). These include nine large coarse ware transport stirrup jars, eight small

fine ware stirrup jars, a kylix and dipper, which can certainly be dated to LH IIIA2 (Weiner 1998, 313). It has been suggested that these were perhaps used by the crew as their everyday tableware, which could imply a Mycenaean ownership of the Ulu Burun (Knapp 1990a, 120). In this respect, swords of Mycenaean, Italian and Levantine types provide conflicting evidence (Vagnetti & Lo Schiavo 1989, 223-7).

The Ulu Burun ship was equally rich in luxury goods, such as gold, silver, precious stones and significantly a single gold scarab. It is this small item that has proved important, not particularly for dating the wreck, but as evidence for continuing trade between Egypt and the Aegean (Bass *et al* 1989, 29). It is inscribed with the name of Nefertiti, wife of the Egyptian pharaoh Akhenaten, which places it in the 18th dynasty, which would not be inconsistent with the Mycenaean pottery mentioned above and with a 14th century BC date for the shipwreck[14].

It is generally accepted (Cline 1994, 100-101) that such a rich cargo is likely to reflect central control. In contrast the cargo of the Gelidonya wreck is much more restricted. In addition to ingots, tools and scrap, which Bass suggested (1961, 274-275; 1967, 163) could represent the 'stock-in-trade' of an itinerant team of smiths[15], a few items of pottery, a sword of possible Italian origin (Bass 1991, 61-70) and some pieces of jewellery need be no more than the personal possessions of the crew[16]. The presence of scrap metal indicates that it epitomises 'a private merchant engaged in freelance trade, 'tramping' from port to port around the Aegean and Eastern Mediterranean' (Cline 1994, 101; see also Bass 1991, 73; Muhly *et al* 1977, 361-362; Knapp 1988).

There is plenty of evidence that trade was directed towards specific communities in the Aegean, but theoretically shipments could also arrive at a certain destination and the exchange of goods could take place without prior arrangement. Maritime trade does not require a fixed base in the region with which its instigators are trading, although as it becomes more regular these are likely to be established.

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[14] The Aegean Dendrochronology Project Laboratory has recently expressed reservations, to be made public at the AIA meeting in January 2005, about the validity of the date of c 1316 BC which has been cited for some years. This date was based on a twisted piece of cedar from the wreck (Kuniholm *et al* 1996; Pulak 1997, 4; Wiener 1998, 314).

[15] Indeed he notes that the only items missing for the manufacture of bronze items were the moulds and these may have been clay.

[16] He adds that it is likely that this was a Syrian controlled ship (Bass 1967, 164-168).

2.4.4 Gateway Communities and Ports of Trade

Trade between two societies requires a forum for exchange to occur: an area where goods can be seen, sampled and acquired. In the case of international trade, particularly where a body of water has to be crossed, certain destinations were favoured which became regular ports of trade. The geography of the Aegean and Central Mediterranean makes it inevitable, in most cases, that part of the trade is maritime and part overland. The point of transfer from initial, usually maritime, trade to subsequent, usually overland trade, has variously been described as a 'Port of Trade' or 'Gateway Community'. Up to this point, trade is likely to have been under Mycenaean control, while the subsequent trade is outside or beyond such control. The question of 'who controls the point of transfer?' is crucial to understanding its function.

The second of these concepts, *the Gateway Community* is discussed at some length by a number of scholars (Burghart 1971; Hirth 1978; Hodges 1982, to name some of the earliest proponents). According to this model imported goods came directly to a few major centres and were redistributed by the local ruler. Such Gateway Communities serve as entrances to or from an area usually involved in long distance trade and are therefore located at points of geographical and transportational significance. They are not necessarily coastal but by definition under local control. Hypothetically a 'Port of Trade' could be one of these Gateway Communities but the gateway model assumes that an equivalent level of sophistication is present in all the societies involved in the trade, which is clearly not the case in all areas of the Mediterranean during the Bronze Age.

Polanyi had already seen (1957), in his discussions of pre-modern trade, a *Port of Trade* as an institutionalised commercial entrepôt. Typically this provided security for the trader and a measure of 'quarantining' for the local community and formed a focus of interaction between an advanced power and a native hinterland. Since his initial definition, the concept has been transferred to studies of the ancient world, most recently by Luke (2003) in a discussion of the character of the community at Al Mina.

Such a Port of Trade is usually situated at a point of geographical significance, often an island, always provided with access to safe waterways, inland trade routes and inter-

regional trade networks. It must be supplied with storage and shipping facilities and accommodation, perhaps away from the local inhabitants, for the traders. Humphreys (1969, 165-212) argues that the essential point of a Port of Trade is that it stands as a buffer both politically and economically between the trader and the hinterland with which he wishes to conduct trade. It is in other words, a neutral zone.

A research project established at Cozumel in Mesoamerica (which was an important participant in Mayan long-distance trade) in an attempt to clarify the nature of this type of centre, provided possible analogies. It was observed that the 'trading centre functioned almost exclusively to facilitate the transport, storage and further manufacture and exchange of non-local communities between geographically dispersed wholesale merchandisers' (Rathje & Sabloff 1973, 221-231; Friedel and Sabloff 1984).

While one important element in Polanyi's definition, institutionalisation, can be recognised in such early sites as Minet el Beidha, the port for Ugarit (2.3.3) where documentary evidence is available, it cannot be *demonstrated*, however likely, for sites in the Aegean or further west, where it is not. The term, however, can reasonably be used for those focal points in the networks of the prehistoric Mediterranean trade, which facilitated the exchanges of goods or ideas, and I shall use it in this sense, as Sherratt has in the case of Troy (Sherratt in Easton 2002, 104).

As Luke has observed (2003, 4-10), it is important, if possible, to distinguish between Ports of Trade controlled by the native population (her type A[17]) and those controlled by the traders (her type C). A locally established Port of Trade might have less effect on the level of acculturation, though establishment itself reflects a desire for foreign goods (2.4.4). A Port of Trade established by foreign merchants would provide a permanent point of contact with and influence on the local population.

It is possible that the third type of Port of Trade defined by Luke (Type B) which provided a meeting point for traders from different directions is represented by the extensive finds of Mycenaean pottery at such island sites as Vivara and Lipari. It is also possible that trade at these sites, as also at Scoglio del Tonno with its large quantities of

imported Mycenaean pottery, were under some form of Mycenaean control (e.g. actually her Type C).

In the case of Scoglio del Tonno and a number of other likely candidates for this role, security and stability (another of Polanyi's criteria) would have been provided by collaboration between the hosts and the incomers on the basis of mutual advantage. Such ports of trade often provided a stimulus to local political and economic activity and, in addition, 'central places' for the region.

[17] Type A correlates with Renfrew's (1975, 42-43) Mode 8 (emissary trading), Type C with his Mode 9 (colonial enclave) and Type B with his Mode 10 (port-of-trade).

2.5 THE PURPOSE OF CONTACT: COLONIES AND SETTLEMENTS

The extent to which colonisation or settlement occurred in the Mediterranean during the Late Bronze Age is a matter of considerable debate. At one extreme it may be argued that the Mycenaeans neither founded colonies nor established settlements; at the other it is assumed that the period reflects a precursor to the Greek colonisation of the 8th century BC (Taylour 1958). Kilian (1990, 465) regarded expansion and colonisation throughout these regions as the likeliest interpretation of the phenomena and suggested that 'community colonies' (see below) existed on the coasts of Macedonia and Italy and at Troy as part of the palatial system established in Greece. It is important therefore, to establish, if possible, criteria which allow the detection of intrusive population groups. Since the material evidence for either colonies or settlements is not necessarily distinguishable from the evidence for the acculturation of the local population this will never be an easy debate to settle.

2.5.1 Definitions

In principle the difference between colonisation and settlement may be defined in the following way – the former generally results from communal initiative with the intention of exploiting native resources, while the latter results from individual enterprise in the expectation of acceptance by, and symbiotic relationship with, the pre-existing population. These are the two extremes, as discussed below, of the *raisons d'être* of newly-planted communities and in practice there is a whole range of gradations between the two and no single model covers all possibilities.

Colonisation has two fundamental aspects – 1) the presence of one or more groups of foreigners (the colonisers) in a region some distance from their place of origin, and 2) evidence of socio-economic exploitation often manifested as domination over the majority group (the colonised). This relationship between colonisation and power politics is explored fully by Rowlands (1998, 328) and others (Van Dommelen 1998, 32-34). Four types of colonies have been defined by Mellink (1983, 138-141) in the following manner:-

1) A *trading colony*, which may be spatially distinct from the host city, (perhaps serving as a port of trade).
2) A *political minority*, which may perhaps be dominant. This has been suggested for Mycenaean Crete.

3) A *nucleus of settlers* among foreigners who may or may not retain their identity through their pottery and other items.
4) A *completely foreign city* only occasionally influenced by other local populations but acquiring local products through trade.

In the context of Minoan relations with other parts of the Aegean, Branigan had offered a different definition with three different types of colony – *governed colonies, settlement colonies* and *community colonies* (1981, 25-26). Governed colonies, essentially the same as Mellink's second category, were established at existing settlements with a foreign administration system imposed, usually by force. This would obviously depend on backing of a military nature and one might expect to find evidence of a garrison. Settlement colonies, approximately Mellink's fourth category, are complete towns founded on unoccupied land by a foreign contingent. In this type of colony the settlers would be expected to live in much the same manner as they would have done in their homeland. In community colonies, on the other hand, a proportion of the population is foreign, merchants and traders who have settled in an existing community to the mutual advantage of both sides. It is likely in this case that they would settle in a particular area within the settlement perhaps equivalent to the recent concept of a 'ghetto'. Here Branigan covers the two types of colony described by Mellink (categories 1 and 3) without providing any distinction between the two. While they may be appropriate to later conditions, it is not clear that any but the third form might be expected in the regions of the 'periphery' where Mycenaean influence was substantial.

In a further article on such colonies (Branigan 1984), he asserts that the most common type of colony that can be identified in the Bronze Age, and especially today, is his community colony, where a significant proportion of the population are immigrants ruled by the indigenous population. He offers examples from the Bronze Age, such as the Assyrian colonies of the 3rd millennium BC and furthermore emphasises that these community colonies maintain their native religion and often burial practices and usually conduct business transactions in their own dialect or language. This can certainly be applied to the present day Chinese community in Bankok, which he describes in detail as well as in the past, Flemish weavers in Britain and French iron founders in the 16th century weald of Kent (Branigan 1984, 50). He also observes that while this immigrant population tends to live in essentially native-style dwellings, the furnishings reflect the tastes and

origins of the occupiers and that the indigenous community often responds by producing artefacts locally that are directs copies of, or are decorated in the same manner as, those favoured by the immigrants in their place of origin. In applying these observations to the Aegean Bronze Age Minoan colony-settlements at Santorini and Phylakopi he finds similarities in the pattern of use and even the presence of Minoan religious practices suggested by the pillar crypt in one of the houses at Phylakopi, and, in his view, the saffron-gathering fresco and shrine on the miniature ship fresco from Santorini (Branigan 1984, 52).

Settlements established on individual initiative may also take a number of forms. Where a port of trade had developed it is probable that merchants will have settled permanently to facilitate their trade. In other cases individuals may have 'hoped to start a better life', settling more or less at random where conditions appeared better, as some are supposed to have done in Cyprus following the collapse of the Mycenaean palace civilisation around 1200 BC (*inter alios* Karageorghis 1982; 1984, 22). Such settlers may have engaged in a wide variety of economic activities from agriculture to the provision of specialised crafts or technologies. Their relationship with the existing population must always be one of mutual advantage if the settlement is to flourish.

2.5.2 Identification

The identification of colonies and settlements is a complex procedure, particularly in the Aegean Bronze Age, when their location cannot be discovered from written documentation. Permanent establishment of a governed colony (politico-military settlement for strategic purposes) would be relatively easy to recognise in the material record, as all the elements would be of foreign nature, from pottery to weaponry, but there is no obvious candidate in the regions of my study. The peaceful settlement of a small number of foreigners within an already established community (community colony) in order to promote trade with the home country is much harder to detect, as there are not necessarily any distinctive remains. As already noted, they cannot be distinguished from the partial acculturation of a native population.

Foreign craftsmen are suggested by Lambrou-Phillipson (1990) to be one of the best indicators of the existence of a colony and proposed the following criteria for identifying them:

i) Distinct skills and techniques - such as the manufacture of jewellery or ivory.

ii) A different and more advanced technology – the use of tools, metallurgical or metal treating processes unknown previously.

iii) Employment of specific mineral mixtures – such as the application of pottery glazes.

iv) The presence of unique, highly specialised small scale industries using imported materials – as for example ivory inlays or amber beads.

These ideas were originally presented by Lambrou–Phillipson at a Mycenaean seminar in London and have been considered by I. Tournavitou (1990b) in the context of ivory working at Mycenae. She rightly concludes that these elements alone, in the 'Ivory Houses', were not sufficient to prove the presence of foreign workers. The same could be applied to the bronze industry of Sardinia where large numbers of Cypriot metalworking tools and techniques have been identified in local metal workshops, but there is nothing else to imply the presence of a 'colony' of Cypriots.

This checklist, though incomplete, can be a helpful aid in assessing the nature of this contact. The presence of any one of these techniques in isolation can only suggest that contact has occurred between two groups. The existence of distinct technological applications generally unknown in the established community may indicate the arrival of a new people or simply the arrival of an individual with the knowledge of techniques. For example, a single and unique occurrence of a technique in a workshop area may indicate the presence of a foreign technician, and by contrast a number of such products found in graves may simply illustrate the preferences or trade relations of a part of the local population. A single foreign craftsman in a village is not a colony; a ghetto of foreigners might indicate a trading post or trading port. Only the discovery of a foreign military installation would conclusively indicate the presence of a formal colony.

A further important consideration is the possibility that merchants and settlers might not build in the same style as at home because of limiting factors, such as the non-availability of raw materials, experienced workmen or even different climatic conditions. At the site of Karum Kanesh in Asia Minor, for example, at the beginning of the second millennium BC, written evidence speaks of the existence of an Assyrian trading colony while the archaeological record has no trace of distinctive colonial architecture, pottery or utensils introduced from Assyria (Orlin 1970; Larsen 1976, Wiener 1984). On the Black Sea coast colonists, demonstrably Greek from literary sources, used a form of pit house, unknown in their homeland (Kuznetzov in Tsetskhladze 1999; Solovyov 1999, 34-42).

The existence of Mycenaean colonists or settlers might be deduced from a combination of the following features:

1. The presence of Mycenaean burial practices, *i.e.* the inclusion of a standard set of grave goods in a fair number of graves.
2. The architectural style of the graves, particularly their construction techniques.
3. The presence of pottery kilns in combination with typical techniques and fashions of the Mycenaean heartland.

Even these are not conclusive since the only definitive criteria for the identification of a Mycenaean, or any other, element in the population, are provided by the skeletal remains of burials, where these are appropriate for osteological or (in the future) DNA analysis. This, of course, provides evidence for genetic identity rather than for self-defined ethnicity. The same evidence, of course, could indicate acculturation of the local population but this might take time to become established and in any case, could hardly happen without a nucleus of settlers possessing the 'expert' knowledge

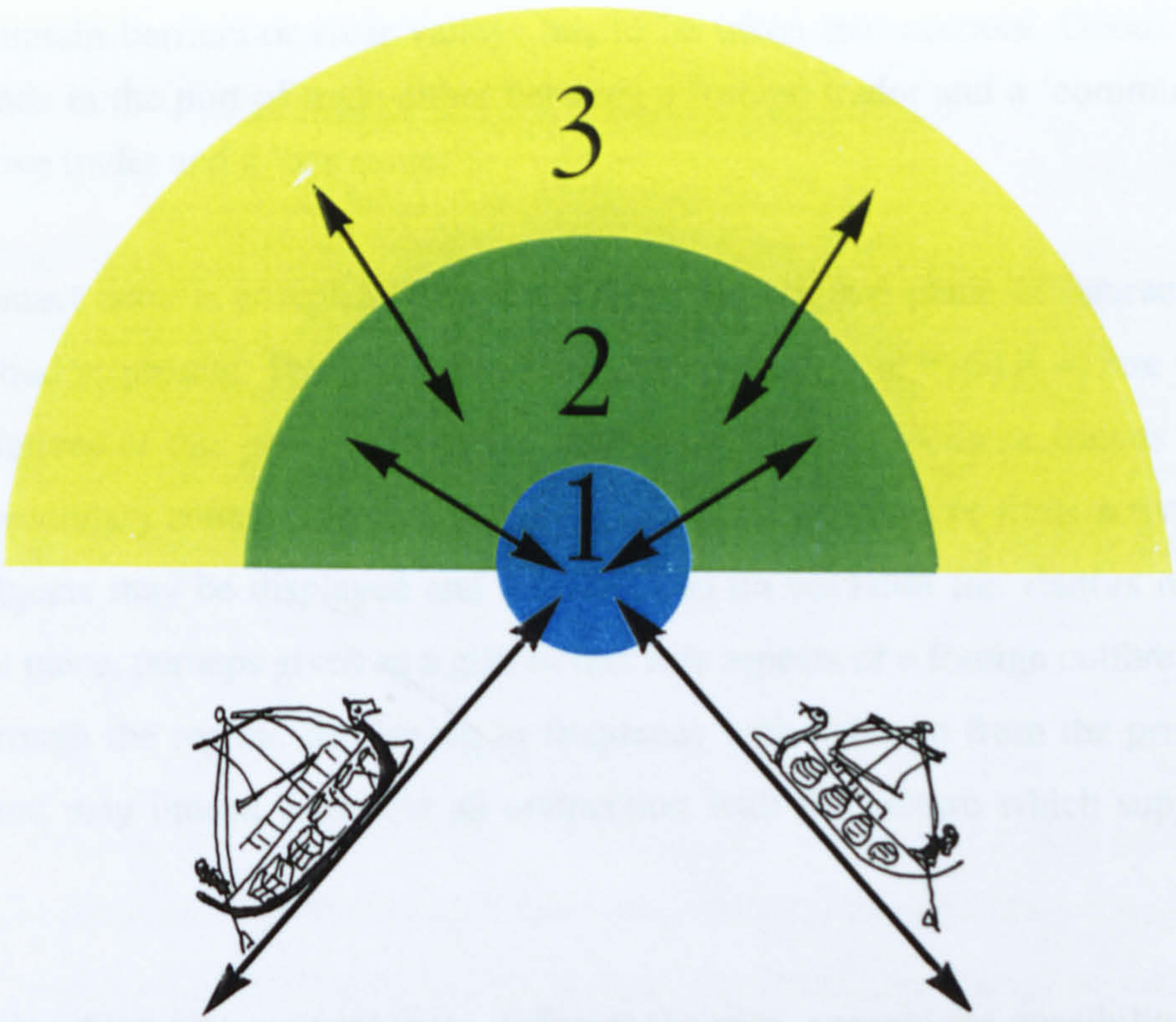
2.6 SOCIO-ECONOMIC PROCESS

2.6.1 Contact Zones

As already discussed, in almost all cases the pattern of contact involves an initial maritime stage and a subsequent overland stage (2.3.5) which meet at a port of trade (2.3.7). The economic mechanisms for the inward or outward transfer of goods or ideas have partly been explored by Feuer in his examination of the diffusion of Mycenaean culture through Thessaly. He presents the Mycenaean world as a 'series of zones of increasing or decreasing integration within the Mycenaean cultural system' (Feuer 1999, 11), which he sees as not being inconsistent with a core-periphery model. He envisages the core as having the greatest integration, while the periphery is represented by progressively decreasing zones of integration. When applying this model specifically to Thessaly he assigns three zones – *the inner border, the outer border and the frontier,* the last of which applies to the most remote areas (Feuer 1999, 12).

Similar definitions are proposed by Sherratt (1994, 337), who defines an inner core, a zone of direct dispersal and an outer margin of selective absorption. Broodbank examines these principles in the context of integration between equals in the Cycladic islands (2000, 258-262, fig. 85 – which shows the connections that could be made by no more than one day's sea travel). Stoddart (1989, 88) discusses these concepts in the context of cores and peripheries and notes that the concept is an over simplified one, since these will not be distributed evenly through space or have stability in time. In addition the boundary between core and periphery may be both geographically and ideologically fluid. Sherratt and Sherratt (1998, 337) emphasise that it is misconceived to regard a core as having an active role and a periphery as having a passive one, ' if cores create peripheries, peripheries also create cores'.

These definitions do not take into account the particular problems of Mycenaean impact on regions of this study, since the 'core' or inner border (at least from a Mycenaean perspective) is more likely to be an individual port of trade rather than a palatial estate whose territory extends over a large area. It may be more appropriate to consider a model with zones of influence decreasing as they become more remote from the possible port of trade (Fig 2.4). Three contact zones may be identified, primary (direct), secondary or tertiary (indirect) which are appropriate to a sedentary society. Where there is any part which is mobile, e.g. seasonal herding, there is an additional transcendent process of trade and exchange in specific areas.



1: PRIMARY ZONE **2: SECONDARY ZONE** **3: TERTIARY ZONE**

FIG 2.5 ACCULTURATION: CONTACT ZONES AND THEIR SPHERES OF INTERACTION, A MODEL. *(Wardle N, 1997, 50)*

The **primary** zone is a locus of interaction between two cultures, an area where innovations may be exhibited and exchanged. It may be a place where traders and itinerant craftsmen come for commercial gain and either sell directly to customers or to native traders. These primary contact zones are likely to be Ports of Trade, such as documented at Ugarit on the Levant coast, and would be located at convenient geographical or strategic locations.

The **secondary** contact zone is the *area or sphere of influence* of the primary zone, the 'commuter' zone from which native inhabitants of the region travel to and from the Port of Trade more or less regularly. The radius of this zone is more or less defined by the travelling time which native inhabitants are prepared to devote to reaching the Port of Trade. While in Fig 2.5 it is shown as an arc, when applied to a specific location the

existence of mountain barriers or river valleys has to be taken into account. Goods and ideas change hands in the port of trade either between a foreign trader and a 'commuter', or between a native trader and a 'commuter'.

The **tertiary** contact zone is completely removed from the original place of interaction, with no foreign traders present. Travel from this distance to the port of trade is so rare as to be negligible. Natives of this part of the region may come to visit family or friends who live within the secondary zone or to participate in wider social, political or ritual activities. Here, foreign objects may be displayed and admired and on occasion the visitors return home with some piece, perhaps given as a gift. In this way aspects of a foreign culture may be dispersed through the region, decreasing in frequency with distance from the primary contact point, and may indeed have lost all connection with the culture which supplied them.

The model, while taking into account these different theories, accepts the possibility that the initial place of contact, the port of trade, is a focal point from which goods can move out (or in), but that it is not necessarily an administrative centre or indeed the main settlement for the local area. In addition, the description above is simplified to a single point of contact from which imports spread, while in reality there is likely to be more than one point of contact in each region, a possibility which is considered in more depth in Chapter 4, where likely ports of trade are identified for each region. Rather than a series of centres that each command their own spheres of influence in the hinterland it is more probable that there were often two or more relatively close centres, whose spheres of influence might overlap. In this case we may expect the cumulative effect to be greater than the sum of the individual elements in the same way that Renfrew proposed the multiplier effect (where the combination of activity in different spheres is equal to more than the sum of the individual parts), which he used to explain the development of Early Bronze Age civilisation (Renfrew 1972, 27-44). However, while Renfrew's model depends on the passage of time for the social processes to accelerate, the present model is related to space. The single model can, however, be used as a starting point to compare what is happening in each region in so far as the pattern of contact fits, exceeds or completely fails to match the model.

2.6.2 Social interaction

The nature of the relationship between any two individuals, let alone that between groups of individuals (*e.g.* social or cultural groups) is among the issues most discussed by both socio-economists and anthropologists trying to understand and classify the way in which human society functions (Shennan 1994; Kelly 2000; Zandeño 2000; David & Kramer 2001; Wright 2002; Andreou 2004). It is not far from the truth to discern a different viewpoint in every viewer (Hinde 1998), sometimes even supporting current political views (Kane 2003, 4): as with many studies of social behaviour, it is the preconceptions of the observer as much as the conditions of the observed which determine the nature of the 'story' and the tools with which it is constructed. The old joke that 'every nuclear family includes an anthropologist' is uncomfortably near the truth for complete confidence in the modes of interpretation exploited. These disciplines deal (ideally at least) with the living. Their subjects are always at liberty to turn the tables and observe the observers, criticise their approach (and probably ridicule their attitudes and intentions).

In the study of past inter-relationships, the process is entirely one sided and a vital part of the story is missing – the concepts, beliefs and feelings of the society as a group or as individuals. All that remains of these societies and individuals (apart from their skeletons) are landscapes, buildings and objects which must be interpreted according to modern perceptions of how ancient (if not primitive) societies functioned. We may imagine the conditioning of group social behaviour and the freedom of individual divergence from it, but we cannot detect how this dichotomy affected the workings of any particular group. We may define the boundaries of our study in order to preserve focus, but the very act of definition excludes the external factors and prejudices the outcome (*cf.* Shanks and Tilley 1987, 21).

It is not surprising that archaeologists have developed their approaches over the past century as they seek better and more reliable tools from other disciplines – the biosciences, geography, economics and sociology – to inform their discussion, nor that there is often a political overtone or even agenda, whether of compliance with, or reaction to, current conditions.

The original perception of *ex oriente lux* coloured the interpretation of the archaeology of the Mediterranean for well over half a century. The presence of Mycenaean objects in Italy, for example, indicated the presence of Mycenaeans, and the dominance of Mycenaean culture (Taylour 1958, 182-186). With the development of more rigorous modes of enquiry in parallel with the developments of nationalism and a sense of national identity, the automatic assumption of the diffusion of ideas and products by societies which were more complex and more advanced technologically was rejected in favour of the autonomy of local development, (e.g. Renfrew 1969, sometimes without considering how probable this might be in certain areas of technology *etc.*).

Recognition of the complexities of social behaviour and the interplay of different domains of social activity in culture systems (Osborn 1994) in parallel with the development of world systems theory (2.3.2) to explain economic processes on both macro and micro scale, led to the development of theories of processual archaeology (Hodder and Hutson 1986, 20-44; Shanks and Tilley 1987a; Binford 1989; Hodder 1999, 12-13, 153; and Layton 1997, 127-156 for the anthropological background) in which every aspect of a society – whether the tangible remains or the significance and relationships deduced from them, could be fitted into a coherent scheme. More recently, this has been rejected on the grounds that it takes too little account of individuality of attitude or activity (Thomas 2000, 149) and that it assumes that it is economic rather than symbolic value which determines the outcome of choices faced by the members of a community on a day-to-day basis or collectively on major issues. Meaning rather than process has become the focus of post-processual approaches (Hodder and Hutson 1986, 206-235; Layton 1997, 184-215) while the principle that data can be read and interpreted in the manner of a text has found favour in several quarters (Botscharow 1989; Tilley 1991; Buchli 1995).

If we could identify a truly closed 'system' so that any of these principles could be applied to the developments within a society which was self-sufficient in terms of subsistence and social cohesion, it might possible to posit cause and observe effect through time with some confidence. That 'No man is an island' as John Donne declared many years ago (*Meditation* xvii, 1624), is a precept which applies as much to

prehistoric archaeology as to his own emotional situation and philosophical standpoint. Closed systems have probably never existed in human society and it is only study and definition by archaeologists, historians or sociologists which create them. Nevertheless the concept does provide a starting point for a first assessment of which features and or processes are most likely to be developed internally and which could depend on external factors (Stoddart 1995, 88-89).

In the context of a continental pattern of communities, where communication is principally, if not exclusively, overland it is possible to draw some kind of boundary between different groups (while recognising that this is conceptual not concrete (*e.g.* Feuer 1983, 1999, Ampolo 1998 on the concept of frontiers even in the Graeco-Roman period), and consider the interaction between two or (?at most) three neighbouring groups in terms of equality/peer polity or the dominance of one or the other. It would not be unusual, if, through time, the conceptual boundary shifted as the marginal part of one group or the other became acculturated and eventually assimilated to its neighbour for reasons which might be economic, social, or symbolic. The detection of a situation where this *did not* happen would indicate a remarkable resistance to change, perhaps on the grounds of perceived identity. As already noted (2.1), perceptions of 'otherness' can be created in variety of ways which may reinforce existing differences and sometimes create them *ab initio*. The symbols or emblems of this otherness will be material objects and arrangements or types of action and behaviour which are deliberately employed to emphasise the differences (Hall 1989, 6-7, 102).

In the context of communities which are situated in or around a body of water, as is the case with the Mediterranean, the acquisition of the technologies of seafaring transforms what was once a barrier to contact into a medium for relationships and interactions which are spatially unlimited. Whereas by land, the number of neighbours interacting in a single region is likely to be small, by sea, distance is little impediment to a wide variety of contacts and relationships, (Broodbank 2000, 61-106).

When comparing different communities within this region, it cannot of course be assumed that each will have reacted in the same way to their contacts with Mycenaean civilization, nor indeed that the only or even the principal external influence was from

this direction. Deciding which of the different internal social processes may have dominated the interaction is equally problematic. While the application of theoretical social frameworks will provide clues and may enable some possibilities to be ruled out and others to be preferred, they cannot replace the entirety of the communal experience and ideology which ultimately determined how external impetus were to be received, modified or rejected (e.g Fox 2004 on the degree of adoption of 'Englishness'). This was observed in practice by Captain Cook and his crew in 1778 when they anchored their ships in Nootka on Vancouver Island: 'As Cook's men quickly learned, adoptions of new items of material culture obtained from newcomers is never a simple case of once seen instantly desired. Any decision to incorporate a new item into an existing repertoire of material culture is socially mediated and no matter how unequal the relative power of two contacting groups, each will select and reject items according to their own logic' (Marshall and Maas 1997, 275)

2.6.3 Social and economic development

Internal social processes, which have been observed to occur in different domains in more or less closed systems, include:

a) improvements to subsistence agriculture or stockraising leading to the development of a surplus (Renfrew 1972, 29-32, 39, 298).

b) increasing stratification of a society on an individual level leading to the development of an elite (Whitehouse and Wilkins 1989, 118-121; Mays 1989, 215-226) or on a community level leading to a polarisation between a 'central place' which may eventually become an urban centre and a series of small 'satellite' hamlets or villages with which the central place is interdependent (Whitehouse and Wilkins 1989, 116-118,121-123).

c) increasing sophistication of the economic structures within a society which sometimes necessitate the development of more or less formal administrative systems.

d) increasing complexity of belief systems and their external symbolic expression, whether these are manifest in terms of monuments or landscapes and whether explicitly connected with the rituals of the living or the symbolic presence of the dead (Georgiades 2003, 31-33; Nash 1997, 18; Parker-Pearson 1999, 157; Tilley 1995, 78);

e) increasing evidence for the development of rival communities within a common cultural substrate which, at one and the same time compete with each other (Renfrew and Cherry 1986; Lomas 1998, 75; Broodbank 2000, 262-272), through their leaders or collectively, for control of resources, for prestige and for control of territory (whether for symbolic or economic reasons) and seek to define their own separate identity through a variety of performed or created emblems.

All these processes can, and perhaps often do, progress at a pace determined solely by the interaction of internal factors. Nevertheless, they may well be accelerated by externally-derived knowledge or experience where this is appropriate to their stage of development. What is improbable is that these developments can be stimulated (rather than imposed) by outside agencies if the internal conditions are not ripe for them.

Developments in technology are more problematic: it is no more likely that a Macedonian potter could simply handle an imported piece of Mycenaean pottery and deduce from it the necessary changes to the techniques of production than that a bronze smith could handle an object of iron for the first time and immediately understand the processes of extracting the metal from the ore or the methods of working it. This is not to say that these skills were never discovered independently, but that the combination of circumstances in which they were discovered is a matter of chance and even then a period of experiment and mistake will have been needed for eventual success. Where new technologies are available in communities with which contact has been established it would be perverse to insist on separate, native, development rather than a sharing of knowledge and skills.

Once any interaction starts with another community, whether as equals or in a core-periphery or other asymmetrical relationship (Rowlands 1998b 225-227), it becomes much harder to establish which of the parties instigated any particular transaction. While the motives may sometimes have been pragmatic and economic – the supply of needs – just as often they may have been symbolic. Even within a society, an object may serve different functions depending on the context of its use and it is quite likely that objects passed between societies acquired a different purpose or function as they crossed the perceived boundary between the two.

2.6.4 Objects and concepts

For the archaeologist, an ancient object is surrounded by layers of preconception which derive from modern experience (Thomas 1996, 234) and the interpretation of past or present function. The same is true of an ancient object in its contemporary context: it bears layers of meaning relating to such matters as the context in which it is received, the perception of the supplier and its function when created (Thomas 1996, 18-19) in addition to the new role it will have in a new context, to say nothing of its practical or symbolic value. Not all will be transferred as the object passes from one 'owner' to another while others may be added. Of these subtleties of meaning, only a few can even be approached from the perspective of 3000 years later. 'The artefacts . . . speak only part of a dialogue in which the interpreter is an active participant, (Hodder and Hutson 2003, 172).

'Imports' transferred in this way may be of different kinds. There is the object itself, which may be used in any practical, symbolic or ritual way appropriate to the community which receives it without any consideration of its former existence. Egyptian scarabs illustrate this type of transfer since they lose the significance implied by the inscriptions on them as soon as they leave the area where this writing can be understood (Schulman in Bass 1961, 275; Bass 1967, 143). While the presence of such objects may denote the existence of trade or contact, it does not necessarily denote influence of like to like. It may well be true that the availability of such objects may alter the social practices of the receiving community but this may be in totally different ways. While such change is certainly attributable to the impact of external influence, it can hardly be said to relate to any level of acculturation since there is, in such case, no convergence of activity or attitude.

In different circumstances, the object may retain some or all of its significance or function. Mycenaean transport stirrup jars, for example, are a distinctive Aegean artefact in the 14th and 13th centuries BC. Their use and subsequent imitation in southern Italy indicates that their practical function was retained. Here it is reasonable to assume a convergence of practices which required the reproduction of an object with many of its

original 'meanings'. The fact that the form is retained, in circumstances where other shapes of transport jar were available, further emphasises the impact of this specific type.

Other objects are more problematic. Throughout the Mycenaean period bronze weapons of Mycenaean style were acquired (and to some extent copied) by neighbours in the north of Greece and beyond. In southern Greece these weapons occur in both simpler and more complex forms which perhaps reflect the prestige of the user. At least some were intended for use in combat. Beyond the 'Mycenaean' frontier there is less certainty about their role: were they used in expert combat or had they become symbolic items which denoted the prestige of the owner rather than weapons carried in anger? (Kristiansen 1989, 213; 2002; Harding 2000, 275-285, esp. 281).

A modern example of the adoption of 'foreign' objects starts in Greece during World War I. The British army camped near Assiros in northern Greece and had many of their supplies sent to them in stoneware jars and metal barrels, the same objects which they used for storage at home. These became highly sought after by the locals for storage of a different range of liquids, olives and other foodstuffs, particularly as the contents stayed cooler and fresher longer in these sturdy jars, which were seen as a great improvement on local products. While these vessels were put to new uses, and remained so for many years (in contrast to the land of their origin where they were rapidly discarded), they eventually became curiosities which served as a focus for story telling about the soldiers who brought them and the means by which the old men (as small boys) had acquired them and other commodities.

Ideas and concepts, too, can be transported across boundaries (Renfrew 1993). Of these, the most obvious are technological: the use of the potter's wheel, or iron oxide slip paints and higher firing temperatures all became widespread amongst potters in Macedonia and Italy as they reproduced with greater or less accuracy the vessels imported from the south (Buxeda i Garrigos *et al*, 2003). These were techniques which had to be learnt from someone who practiced them and which were applied by the 'pupils' with differing levels of success.

Other introduced concepts are less tangible but may well have been influential and occasioned social reproduction. Among these are mortuary practices – which will hardly be learnt without the presence of at least a few individuals who practiced them for their own kin or companions – while the extent to which they may have been adopted by the native community will depend on a whole gamut of social pressures and aspirations as well as the strength of adherence to existing practices (Fox 2004). As with the more

straightforward case of imported artefacts, it is perfectly possible for a set of practices to be adopted without including all of the original meanings or symbolisms.

The acceptance of an innovation is dependent on various factors. Does it perceptibly improve on existing fashions? Is it compatible with the already established practices or technologies? Is it readily accessible and intelligible? Has the innovation already been adopted elsewhere and can be seen in use? The strength of local traditions and resistance to change cannot be ignored (Van de Leeuw 1993). Except in cases where assimilation has already occurred, the local traditions play an equal or dominant role.

The contexts of social reproduction in which ideas are adopted and objects accepted for use can naturally be quite varied. Among these may be identified:
1) the desire for emulation which played such a large part in the Hellenisation of the Near East (Barrett 1990, 548)[18] and the Romanisation of Europe (Okun 1989, 131). In this process, elite members of a community strove to obtain social acceptance by the dominant power and access to economic benefits.
2) contexts of public display and status, whether associated with maintenance of internal power by an elite, or as part of a demonstration to equal external communities to maintain or improve a position in existing political relationships (McGuire 1989, 49-51; Broodbank 2000, 262-272).
3) contexts of social bonding (Andreou 2004). These may reinforce the power of the elite, either by cementing relationships with 'clients' and dependants or by emphasising the social and political dominance of a group within a society. They will often involve the use of equipment for communal eating and drinking of which the classic example is the 'symposium' set, which has already been recognised in Late Bronze Age Macedonia (Wardle, Wardle and Wardle 2003; Andreou 2004; Jung 2004) and perhaps more widely in the Late Bronze and Iron Age Mediterranean. Here too it is unclear whether the use of equipment such as drinking cups and mixing bowls of imported style is in imitation of their original use, or whether they form a novel and fashionable enhancement of already existing practices. In an archaeological and documentary study of potlatch practices in the 19th century in Northwest Canada concluded that 'the adoption of pottery occurs first in ritual contexts for reasons only tangentially concerned with practical function (Marshall & Maas 1997, 277). In all these cases there is a symbolic aspect, which may either reinforce (or be divorced from) the functional aspect of the objects or practices concerned.

[18] In Judah this even extended to changing Hebrew names to Greek equivalents and concealing circumcision to enable attendance at the Gymnasion (Barrett *loc cit*).

2.7 ACCULTURATION: CLASSES OF EVIDENCE

'Few general statements exist in archaeology as to how one detects acculturation' and most attempts to do this have used a 'small range of material traits' (Bartel 1989, 176-177) such as food preparation (Bunimovitz & Yasur-Landau 1996, 92-93), mortuary practice or economic transactions. Each of these approaches, by focusing on a single, domain-aspecific aspect of social activity, risks ignoring the complexities of any culture system by treating the remainder of the evidence as too insignificant to contribute (Arends-Tóth & van de Vijver 2004, 21, Table 1).

2.7.0 Cultural domain analysis in the archaeological record

A more fruitful approach which can be adapted to a purely archaeological context has been adopted for the study of assemblages which represent acculturation in the Spanish colonial empire. This was based on seven *functional* categories of evidence at a single site, such as those for personal adornment, food preparation and serving, socio-religious goods *etc.*, as appropriate to the specific context (Di Peso 1974, 916) in relation to different status groups within the community. Comparison of the percentage of evidence for each class then provided information about the activities and level of acculturation of each status group. This concept was then elaborated by Farnsworth, among others, to include a wider range of cultural or functional attributes and enable comparison between different communities (Farnsworth 1989) on the basis of artefact group analysis.

Di Peso and Farnsworth's approach was directed to a few sites in detail. As already noted, the present state of evidence from the regions of this study in the Late Bronze Age Mediterranean would not make such a site-by-site study fruitful and it is preferable proceed on a region-by-region basis (2.1) but employing a similar functional approach in broader terms of social activity as appropriate to a culture system.

The methods of anthropologists such as Di Peso and Farnsworth employ the techniques of 'cultural domain analysis' (Weller & Kimball Romney 1988, 9-11) which originated in ethnographic studies of aspects of culture (both material and functional). This has been taken up widely by disciplines as diverse as geological survey and computer software engineering as a tool for distinguishing patterns and facilitating decisions . One important difference between the archaeologist and the ethnographer, which naturally affects the process of data collection, is that the ethnographer can expect spoken responses from his subjects, while the objects of archaeological study remain stubbornly

mute. In principle, however, it should be possible to 'interrogate' a number of similar archaeological artefacts in the expectation that the majority of them will disclose a similar function, even if a few are aberrant. In a similar way that the ethnographer's respondants will make similar responses provided that they form a homogenous cultural group (Weller & Kimball Romney 1988, 14-16; Arends-Tóth & van de Vijver 2004). While it may seem all too familiar to archaeologists as 'data collection', it does facilitate the recording of evidence in logical, internally consistent groups and makes statistical analysis possible on the basis of quantified evidence.

While the study by Arends-Tóth & van de Vijver of Turkish immigrants in the Netherlands focuses on the integration of a small group within the larger community their definitions of domains of activity should be equally appropriate to the reverse process. The principal separation of domains is into *public* and *private*, each of which includes a number of specific 'life domains'. Within these a subordinate level can be identified in ethnographic contexts according to the preference of individuals for 'adaptation and maintenance across specific situations' (Arends-Tóth & van de Vijver 2004, 22).

Their analysis of responses by immigrant (Turkish) and native (Dutch) subjects demonstrated that while in the *public* domain there is little difference between individuals of the two groups, for the Turkish minority the traditions of their home country remain dominant in the *private* domain, particularly in the maintenance of their religious practices, the family and child-rearing and cultural habits. Minimal importance was attached to domains that related to 'the functional, utilitarian and public aspects of both cultures' (Arends-Tóth & van de Vijver 2004, 26, Table 2). For this study the life domains selected were: private – child-rearing, food, celebrations and religion; and public – education, language, social contact and news. The importance given to each of the major groups was different for the two communities. The Turkish community perceived little difference between their activities in the public and private domains, while the Dutch community regarded the activities in the public domain as more significant. Both perceptions are at variance with actual practice.

Obviously only some of these domains can be explored through archaeological evidence, but the principal of public and private is equally valid, though less well defined. In the ethnographic studies the public domains can to a large extent be related to those characteristics where adaption is seen most readily and the private domains to those where maintenance is more typical. If these are applied to material culture, the following domains of social (or functional) activity (defined in greater detail below, where the reasons for the choice of each are set out: 2.7.1-2.7.8), where the presence of

Mycenaean imports, or the adoption of technologies or concepts may betray either the presence of Mycenaeans, as colonists or settlers (2.5), or the acculturation of a native population to different degrees. The processes by which these characteristics are transferred or developed are different, but the visible end product may be identical[19]. In an archaeological context, the distinctions between private and public

Private / Maintenance

- religion
- social organisation
- funerary customs
- agriculture

Public / Adaptation

- defensive provision
- architecture
- metal working
- pottery manufacture

Religion and funerary customs clearly relate to the private domain, while social organisation is still likely to be based on the cohesion of family units and can only be change if fundamental changes take place at this level. Practices of agriculture fundamental to the subsistence and livelihood of each family should probably be included in this domain in societies where each family depends on its own production and resistance to innovation is well documented. The communal effort involved in defensive provisions and to a lesser extent in architecture places these in the public domain, while metalworking and pottery manufacture correspond to functional and utilitarian activities carried out by 'specialist' craftsmen who supply the community as a whole, in which adaptation may readily occur.

This order of this list of domains reflects the decreasing level of significance in the process of acculturation but, in contrast, the increasing likelihood of recovering material evidence to detect it. Thus the practice of religion, potentially the most significant

[19] In the discussion of the detailed evidence presented in Chapter 5 attention is drawn to those circumstances where the possibility of incoming settlers should be considered seriously.

indicator of acculturation, is the most difficult to detect (2.7.1). Pottery, on the other hand, is one of the most durable materials and readily adopted by the indigenous peoples for their own purposes or as a reflection of the adoption of new patterns of behaviour (2.7.8). On this basis it is among the least significant indicators of acculturation. Other possible indicators such as those for fashions in textiles, clothing and jewellery, are barely reported for these regions and have, on that basis, been omitted from the analysis, though included as appropriate in the discussion. The limited evidence for animal husbandry is discussed, where appropriate, with that for agriculture.

Ranking the indicators

These domains of social activity have been ranked on the basis of their potential value in determining the level of acculturation in any given area. Each has been further subdivided into categories of evidence which are likely to survive in archaeological contexts, or whose existence may be inferred from the evidence which *does* survive. Each of these categories is discussed in the sections that follow in terms of its potential contribution to the study of the domain in question so that a cumulative picture can be gained of each area. These categories, have, in turn, been ranked in accordance to their importance in determining the level of acculturation in the relevant domain of social activity. Thus in the case of architecture, buildings interpreted as having had a religious role would rank higher than those which appear to have been used solely for domestic purposes. The reasons for this weighting are set out below (2.7.1-2.7.8).

In order to obtain as consistent a view as possible of the evidence, a numerical system of scoring has been adopted for each domain of social activity and category of evidence to reflect the ranking. This is used as a multiplier for the quantitative assessment of the evidence itself. However, the quantity of evidence from each region is so variable, the recovery rates so inconsistent and the publication so incomplete, that it is not valid to quantify the evidence simply in terms of *number of individual examples* (since, for example, in many cases publications report that locally made Mycenaean pottery is present but rarely state how many sherds and almost never the proportion of the total pottery assemblage that these represent). Instead, broader concepts of the significance of each category are appropriate here based on the principle of *presence analysis*, as applied, for example, to archaeobotanical studies where the *quantity* of any seed type is often not a useful criterion while the *frequency* of its appearance in different samples is significant

(Hubbard 1976; Jones, G., 1983, 117-132)[20]. For example where a particular characteristic or type of evidence is found in fifty out of a hundred sites, it is clearly more important than its occurrence in two out of a hundred sites in a different region, but it is not necessarily more important than two occurrences of a different characteristic in the same region. Thus the levels of acculturation are better seen when expressed in terms of presence on a site-by-site basis (rather than the number of instances at each site) as applied in the region-by-region analysis in Chapter 5.

Each of the domains of social activity is scored on a scale from 10 to 1. **Religion**, which is one of the most significant indicators of acculturation, where the evidence is available, has been scored at 10. Religion and belief are always high among the indicators of acculturation in anthropological studies (Osborn 1994; Arends-Tóth & van de Vijver 2004, 26) and it is reasonable to assume an equal significance in an archaeological context, even where there is no documentary evidence available. In studies of early historical acculturation the significance of the adoption of a new religion (Malkin 1987 for the Greek colonisation of southern Italy) or the strength of resistance or reassertion of an old one is regularly emphasised (Torelli 1999, 12-18 for the equivalent Roman colonisation of central Italy). Two other areas of social activity, which are not readily changed by the influence of new ideas, are those of **social organisation** and **funerary custom**, which depend on the beliefs and practices at family level and which both score highly in Arends-Tóth & van de Vijvers' study (2004). Where changes in these can be observed which mimic the practice of Mycenaeans from the heartland, it is reasonable to assume that a significant level of acculturation is occurring. Accordingly, both domains are scored at 8. Evidence for the changes in practice of **agriculture** is inevitably hard to detect, though the resultant provision of storage facilities may be more obvious. The impact of innovations in this area may well be important economically and affect the prosperity of a community and its potential productivity, but need not be so far-reaching in terms of social organisation. Agriculture has therefore been scored at 6.

Innovations in **defensive** arrangements and in public or domestic **architecture** may well have occurred in response to ideas or specific knowledge brought by such visitors as traders, but probably reflect only limited changes in the broader pattern of social organisation and are therefore less important in determining levels of acculturation. These, therefore, are both scored at 4. Objects of metal, which are intrinsically the most valuable to survive in the archaeological record are also among the most portable. The presence of a sword or knife of Mycenaean type need represent no more than a traded item of practical

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[20] This is the same principle as used by ethnographers when eliciting responses from their study group: 'responses should be tabulated by the number of persons mentioning each item and not the total number of times that an item is mentioned (Weller & Kimball Romney 1988, 15).

value for its function and intrinsic value for its metal content. Where, however, there is evidence of **metal objects of Mycenaean or Cypriot type**[21] produced in local workshops, this naturally suggests a rather higher degree of adoption of technologies and modes of behaviour. Accordingly this is scored at 3. Given the number of metal objects and the complexity of their patterns of manufacture and distribution I have focussed on those which have some definite Mycenaean/Cypriot antecedents.

Mycenaean style pottery, as already mentioned, provides the most obvious evidence of contact with the Mycenaean world, but its significance is the least marked of all. Its effect on the social habits of the native populations is probably limited to a few domains of activity such as the adoption or adaptation of Mycenaean technologies or drinking habits (5.5.8) and as such has been given the lowest score of 2. In other cases, its presence reflects the adoption of Mycenaean vessels into existing practices as exotics demonstrating status or prestige.

The categories of evidence within each domain of social activity have been ranked on a scale of 4 to 1: the local manufacture of an artefact, for example, is of much greater significance than simply its presence.

While the precise score given to each domain and the ranking given to each category of evidence is necessarily arbitrary, these scores reflect a logical order of importance and enable comparisons to be made between areas on a standardised basis. In any case they enable each category of evidence and each domain of social activity which the evidence reflects to be compared on a region-by-region basis. For each region a pair of tables has been compiled (*e.g.* 5.4, 5.5), presenting the evidence in numerical and graphic form.

A blank Table (2.1) is presented below to show the domains of social activity and the categories of evidence with the respective weighting factors based on the scoring discussed in the following sections. The first of these sets out in column **A**, the domains of social activity and the sub-categories of evidence; in **B**, the number of sites with evidence of acculturation in each category; **C**) the number of significant sites (the criteria for determining this number are set out in the relevant sections in Chapter 3) for each region from which **D**) the percentage representation for presence analysis is derived. This figure is then multiplied by the weighting factor for each area of activity (column **E**) and the weighting factor for each category (column **F**) to produce a weighted value for each of the

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[21] Separating the influence of other eastern Mediterranean communities such as Cyprus from those of Mycenaean Greece is in most cases impossible at this stage of our knowledge. In this study I have therefore assumed that such influences reaching the northern Aegean and the central Mediterranean are part of the pattern of Mycenaean acculturation rather than separate from it, while recognising that this is likely to be an oversimplification.

categories (column **G**) and a cumulative total for the domain as a whole (column **G** in bold).

These figures are then translated into the graphic Table (2.2). Here, for each of the domains a solid dot is used to indicate the presence of evidence, while its position indicates the strength of that evidence on the basis of the percentage of the sites at which it is represented. Thus a representation of between 0% and 5% of sites is classed as weak, between 5% and 20% as moderate and between 20% and 100% as strong (a logarithmic scale is used to keep the graph compact).

The total score for each domain of social activity in the region from column **G** in Table 2.1 is compared with the mean value for all the regions by calculating its deviation from that mean as a multiple of the mean, e.g. southern Italy scores 139 for funerary custom against a mean of 294 for all regions, resulting in a deviation from the mean of 0.47 (139/294). This value is used to locate a blue lozenge against the lower (blue) log scale in Table 2.2 to indicate the relative strength of acculturation in each. The deviation factor for each domain is also presented in the summary following the tables in Chapter 5.

Thus in the illustrative table (Table 2.2) that follows, ● in the domain of religion indicates that cult objects have been found at 2% of the sites, while the blue lozenge illustrates the low level of evidence for the region at 0.4 in comparison with a mean value of 1. In the domain of agriculture the black dots indicate the introduction of crops at 1% of sites and evidence for storage methods at 10% of sites. These suggest a relatively high level of evidence for the region (blue lozenge) at 2.0 in comparison with a mean of 1. In the domain of pottery manufacture the black dots indicate 2% of sites with kilns, 30% of sites with local Mycenaean fine ware and 60% of sites with imported Mycenaean. This is an average level of evidence for the region at 1.0.

In order for a comparative assessment of the level of acculturation between the different regions, a similar pair of tables have been compiled in Chapter 6 in Tables 6.1 and 6.2. The cumulative score for each region is compared with the mean for all regions by calculating its deviation from that mean as a multiple of the mean, *e.g.* the cumulative score for southern Italy is 1293 against a mean of 1103, resulting in a deviation from the mean of 1.17 (1293/1103). In addition these figures enable a statistical test of the significance of the differences between each region (Tables 6.7, 6.8).

TABLE 2.1 ACCULTURATION IN THE CONTEXT OF CONTACT BETWEEN MYCENAEAN GREECE AND NEIGHBOURING AREAS: THE THEORETICAL BASIS

A		B	C	D	E	F	G
Domains of Social Activity		**Number of sites in ….. with features**	**Total number of sites in ….**	**% representation**	**weighting factor category**	**weighting factor sub-category**	**weighted value**
RELIGION							
Belief systems					10	4	
Shrines					10	3	
Cult objects					10	2	
SOCIAL ORGANISATION & HABITS							
Urbanisation					8	4	
Central Storage					8	3	
FUNERARY CUSTOM							
Mortuary systems					8	4	
Ritual/Grave types					8	3	
Grave goods (Mycenaean type					8	2	
AGRICULTURE							
Crops					6	4	
Methods of cultivation					6	4	
Storage methods					6	2	
DEFENCE							
Circuit Walls					4	4	
Fortification					4	2	
Weaponry					4	1	

Domains of Social Activity		Number of sites in ….. with features	Total number of sites in ….	% representation	weighting factor category	weighting factor sub-category	weighted value
ARCHITECTURE							
Religious					4	4	
Public					4	3	
Domestic					4	2	
METAL WORKING (MYC – CYPRIOT)							
Workshops					3	4	
Moulds					3	4	
Finished product					3	2	
Ingots					3	1	
POTTERY							
Kilns/workshops					2	4	
Dolii/pithoi/storage vessels					2	3	
Locally made Mycenaean Coarse Ware					2	3	
Locally made Mycenaean Fine Ware					2	2	
Provincial Mycenaean					2	2	
Grey Ware (Wheel Made)					2	2	
Local/Mycenaean mixed					2	2	
Imported Mycenaean					2	1	

TABLE 2.2 ACCULTURATION IN THE CONTEXT OF CONTACT BETWEEN MYCENAEAN GREECE AND NEIGHBOURING AREAS: A GRAPHIC REPRESENTATION

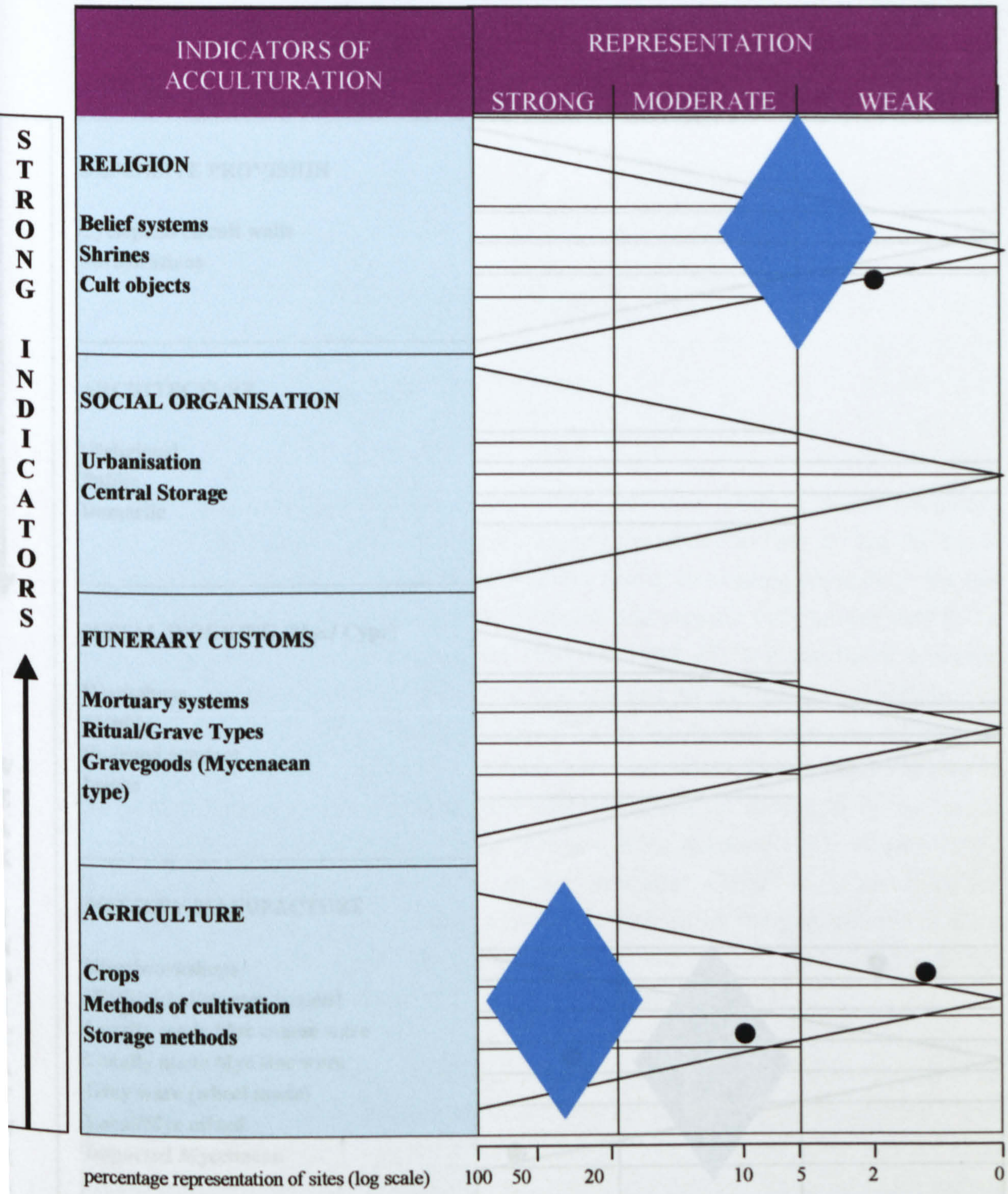
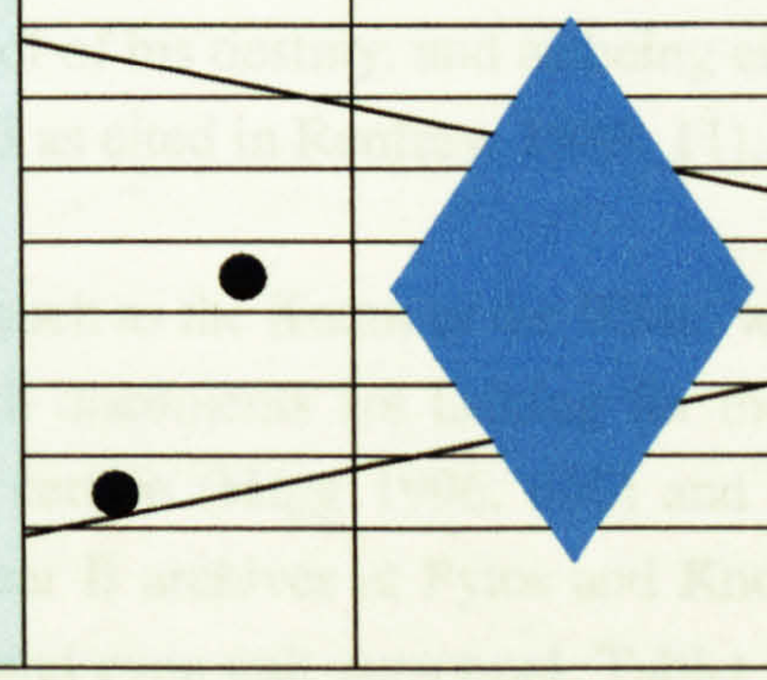


TABLE 2.2 (CONT) ACCULTURATION IN THE CONTEXT OF CONTACT BETWEEN MYCENAEAN GREECE AND NEIGHBOURING AREAS: A GRAPHIC REPRESENTATION

INDICATORS OF ACCULTURATION	REPRESENTATION		
	STRONG	MODERATE	WEAK
DEFENSIVE PROVISION			
Cyclopean circuit walls			
Fortifications			
ARCHITECTURE			
[Religious]			
Public			
Domestic			
METAL WORKING (Myc/ Cypr)			
Workshops			
Moulds			
Finished product			
Ingots			
POTTERY MANUFACTURE			
Kilns/workshops			
[Dolii/pithoi/storage vessels]			
Locally made Myc coarse ware			
Locally made Myc fine ware			
Grey ware (wheel made)			
Local/Myc mixed			
Imported Mycenaean			

WEAK INDICATORS



percentage representation of sites (log scale) 100 50 20 10 5 2 0

deviation from mean for category 5 2 1.5 1 0.5 0.2 0

Application of these scoring principles to the surviving material remains, as set out in Chapter 5, should allow the nature of the contact and the relative extent of acculturation to be established for each region against criteria, which although inevitably less than fully objective, are specific enough to permit the accommodation of new data in each category. Thus, as new finds are made, in the future a fresh analysis can be made for any region while maintaining a unified approach.

2.7.1 Religion

SUB-CATEGORY	SCORED AT
Belief systems	**4**
Shrines	**3**
Cult objects	**2**

As ethnographic studies have shown in a number of cases, religious beliefs are among those held most strongly by immigrant communities (Arends-Tóth & van de Vijver 2004), and it is logical to suppose that this is also true of an existing population. Ancient religion is in itself innately mysterious, its rituals and purpose fully known only to the individuals that practiced them (Renfrew 1985, 11; 1994, 47). It is justifiable, however, even in the prehistoric period, to suppose that spiritual preoccupations are reflected by aspects of material culture (Harding 2000, 308). In the Aegean structures which have been identified as Mycenaean shrines have been uncovered, but the exact nature of Mycenaean cult and beliefs still remains largely speculative, though there has been a good attempt to identify some of these (Nilsson 1950; Renfrew 1985; Warren 1988). Religion may be defined as 'action or conduct indicating a belief in, or reverence for, and desire to please, a divine ruling power. Recognition on the part of man of some higher unseen power as having control of his destiny, and as being entitled to obedience, reverence and worship' (Onions 1973 as cited in Renfrew 1985, 11).

While today we have written records such as the Koran or the Bible, which at least provide the mythological basis of belief, such documents are lacking for the Mycenaeans. That theirs was a polytheistic religion is certain (Hägg 1996, 650) and some aspects of its practice can be interpreted from Linear B archives at Pylos and Knossos, which include the names of deities, some festivals and even cult personnel. Tablet TN 316 from Pylos, for example, gives information on religious rites, while V52 from Knossos mentions four deities (Chadwick 1976, 88-89). Before attempting to identify traces of this religion in peripheral areas certain factors must be considered. Mycenaean civilisation spanned over five hundred years and it is not unlikely that changes in expression of their religion

occurred, not only through time but also regionally. There are also levels of religion that have to be taken into account. An official religion, that regulated for and by the state, is implied in the Linear B tablets which suggests the presence also of popular religion, servicing the needs of a general population (Hägg 1996, 601). In the light of these difficulties, the task of identifying Mycenaean beliefs and practices transported to or adopted in other parts of the Mediterranean is even more difficult.

Warren sees religion in the terms of ritual actions, which essentially comprise 'Ορωμενα things done, λεγωμενα things said or sung, δεικνυμενα things displayed' (1988, 12-13). The final category – the material symbols and iconographic representations of a particular religion – stand the best chance of being preserved in the archaeological record. Ritual behaviour is easily recognised in life as actions that are continuously repeated: for example, the sign of the cross made by congregations during church services and even, in the case of Greek Orthodox religion, when passing a church or a secular building which resembles a church. The archaeological recognition of this is a different matter.

Cult objects such as figurines or rhyta are sometimes found, but their presence does not necessarily suggest a link with ritual practice according to the Mycenaean tradition. The presence of scarabs in the Mediterranean illustrates this very effectively. In their place of origin, Egypt, they can possess religious significance, but in the Aegean they may be no more than ornaments or talismans which are often treasured for many years (Schulman in Bass 1967; Jacobsson 1994, 83 for their significance to the Cypriot population). At Perati, for example, 18th and 19th dynasty scarabs were not deposited until the 12th century (Cline 1994, 9; also 35-36 for chronological problems relating to scarabs, catalogue II, 106-115). Only the presence of a cult object, such as a figurine, with other religious objects, preferably in a structure that is similar to the shrines already identified in the Aegean, would point for certain, to the same religious practices. In the absence of such assemblages one can only speculate as to the nature of the religion practiced in any particular region.

The nature of cult places/shrines in the Mycenaean heartland is itself problematic. At Mycenae for example, five separate structures seem to form a cult complex although each structure differs substantially from the others (Moore & Taylour 1999; Shelton 2002; Wardle 2003). Chronologically we cannot be sure of the precise order in which each was constructed in the LH IIIB1 period, whether, indeed, they were used simultaneously or what sort of rituals were carried out in each. There are differences between the types of altars/hearths that have been found in the various structures – those with traces of burning and animal bones suggest some form of animal sacrifice but the use of the others remains unknown. It must also be acknowledged that the nature of and paraphernalia for religious observances may have changed over the course of the Mycenaean period, prompted by

changes such as that of access to the cult complex. In its earliest phases this lay outside the citadel walls and was therefore in theory accessible to all – at least in the courtyard areas if not inside the shrines themselves, while towards the end of LH IIIB palatial control seems to have been asserted over religious activities, and the access to the shrines (if indeed they were still actively in use) is limited to a single processional way which originated within the palace complex itself – therefore restricting the numbers of individuals actively worshipping in the cult complex (Shelton 2002; Wardle 2003; Moore & Taylour 1999).

With these considerations in mind, evidence for the domain of religion has been classified in three categories – *belief systems*, *shrines*, *cult objects*. The identification of belief systems is problematic, as it requires an understanding of both the indigenous and foreign religious practices, which in the absence of corroborative texts can only be interpreted on the basis of ritual assemblages. If foreign beliefs could be identified, as for example the indigenous population worshipping 'foreign' gods complete with cult statues and offerings, it would be a good indicator that the belief systems of the Mycenaeans had been adopted by the indigenous culture and should therefore be ranked first and scored at 4. Shrines are more likely to survive in the archaeological record, though often in a poor state of preservation and even more rarely with the cult objects *in situ*. Any accurate reconstruction of the acts of worship conducted there is thus unlikely. A shrine built in the Mycenaean style and perhaps using some objects of Mycenaean origin could fall within this category. Local cult centres with evidence of some foreign influence such as the use of Mycenaean pottery as part of the ritual repertoire might also be significant. These are all indicators of a moderate level of acculturation of the local people and are therefore ranked second within the domain of religion and scored at 3. The final category is that of the cult objects themselves, which have already been discussed to some degree above. Since these are readily divorced from their original purposes and may only have survived as curiosities they must therefore rank least important when found in isolation in the identification of acculturation within this domain and only hold more significance if they are produced locally or adapted to local tastes as is the case in southern Italy (5.3.1). They are therefore scored at 2.

The relationship between the domains of religion and funerary custom is a complex one (Bruit Zaidman & Schmitt Pantel 1992, 72-79 for Classical Greece). The belief in an afterlife, which is sometimes provided for in funerary and post-funerary rituals and is well documented in Egyptian texts and inscriptions (Niwinski 1988 on 21st Dynasty texts; Silverman 1991 on belief in the afterlife and preparation for it, 1-87; Lesko 1991 on the 'Book of Two Ways' and the 'Book of the Dead', which both provide guidance for the deceased on his journey through and in the afterlife; Taylour 2001), cannot be demonstrated for Mycenaean Greece on the basis of the grave offerings, nor can it be ruled

out (Lewartowski 2000, 50; Vermeule 1979, 56). Even in the Classical period the nature of an afterlife was only vaguely defined and had no connection with the majority of practices reported in literary or textual sources (Morris 1992, 103-108). There is little evidence that graves or cemeteries were focal points for wider religious activity as distinct from places where the dead were honoured and remembered, whether distant ancestors or recently deceased kin or where communal celebrations took place which helped increase the social bonding (Orme 1992, 218-254).

While funerary customs may reflect the religious preferences of the local populations, the forms of the burial structures and the types of the associated grave-goods have no necessary connection with religion and need only reflect fashion or pragmatic considerations, though necessarily related to family or communal traditions. This can be illustrated by reference to modern practice. The affection of the bereaved for the deceased is regularly demonstrated by 'offerings' of flowers on or beside a grave. Although such flowers are unlikely to survive for any length of time the vase, or other container, which may have been used has become an 'archaeological' artefact, whether whole or broken. The form of the vase often depends on what comes to hand or the current stock of the funeral director. Only rarely is the practice as specific as the traditional custom on the island of Skyros of using for this purpose one of the small, but distinctively decorated jugs produced on the island. Strikingly a new, or intact, jug was never used, but rather a broken one, in order to 'prevent anyone stealing it' (A Skyriot potter 1999 *pers. comm.*). For these reasons the material evidence for funerary customs has been placed in a separate category (2.7.3). Religion and burial are conceptually separate domains, although there are some points of overlap. In practice they are illustrated by different types of evidence: sacred/cult sites are not necessarily burial places: burial practices are not entirely dominated by religious belief.

2.7.2 Social Organisation

SUB-CATEGORY	SCORED AT
Urbanisation	**4**
Central Storage	**3**

The reconstruction of social organisation is fraught with similar problems to those already mentioned in the context of religious practices. While we are fortunate in Greece in having Linear B tablets, particularly from Pylos, which contain details of the collection and redistribution of produce[22], suggesting a complex level of organisation, this system was

[22] See the discussion in section 2.3.4-5 regarding reciprocity and redistribution.

not necessarily present throughout the Mycenaean area (Halstead 1992). We are in little doubt, however, that society in the Mycenaean heartland was highly stratified. In the early period (LH I-II) tombs show differences in status which by LH IIIB become more apparent in the record of the living, with the construction of palatial buildings and citadel walls which operate as social boundaries.

Elsewhere, where documentary evidence is absent, it is only possible to speculate on the existence of complex social organisation and stratification on the basis of an examination of the archaeological record. It may be presumed that the original building block of sedentary society was the nuclear family, principally engaged in agriculture and stock-raising. The emergence of complexity depends on social bonds being developed and maintained among wider kin-groups which themselves become stratified internally with the emergence of clan leaders – powerful figures who can negotiate in a variety of ways to the advantage of the kin-group as a whole. The success of larger social groups depends on the collaboration of the kin-group members, rather than on the disintegration of that structure and its replacement by a different one. Social organisation is thus at every level very much a family affair. The *private domain* bonds of each kin-group are essential for cooperative actions in the *public domain*. As such they are resistant to change and evidence for any change suggests changed behaviour at a very basic level.

The sudden construction of a larger central building, fortification wall or public space, in an area where previously everything had been of uniform size, indicates changes in the society as whole. Such construction might reflect the needs of a more structured society resulting from the emergence of one or more families into a position of greater power and respect – the emergence of an elite.

Evidence for potential changes in social organisation can more conveniently be divided into two sub-headings of *urbanisation* and *central storage*. While there may be objections to using the term 'urbanisation' since it is a term loaded with modern concepts more accurately applied only in the first millennium BC, it remains a convenient label to mark the beginning of the changes which might lead towards full urbanisation. In the third millennium urbanisation is a social development that begins to occur in the eastern Mediterranean area during the Early Bronze Age (e.g. Sherratt 1997, 457-470). Its introduction in the central and western Mediterranean does not seem to occur until the 2nd half of the second millennium. Significantly for the purposes of identifying acculturation, this development seems almost contemporaneous with the spread of Mycenaean contact. The discussion of whether the Mycenaeans were actually responsible for this or simply provided a stimulus is reserved for Chapter 5.

Urbanisation in its simplest form reflects the shift away from village communities of similar size and resources to a less uniform pattern of settlements including large centres which serve as foci for the manufacture of specialized goods and exchange of traded items and the abandonment of more peripheral villages in preference for those more centrally or advantageously located (*cf.* Konsola 1986 for these processes in the Early Helladic period in the Aegean; Whitehouse and Wilkins 1989, 121-123 for Bronze Age south east Italy; and Fear 1996, 6-30 for Roman Baetica). In its more complex manifestation this simple change occurs throughout a region so that not only are some buildings more significant and more ornate than others within a single settlement (Konsola 1986, 11), but that some settlements, and often a single one, become the most important for that region, just as Broglio di Trebisacce in Calabria in southern Italy, perhaps through its possible role as a port of trade, comes to dominate its own hinterland (5.3.2; cf. Whitehouse & Wilkins 1989, 116-118).

Historically the process of urbanisation has usually been accompanied by significant population increase (Davis 1965, 40). The identification of these changes requires a good understanding of the nature of the local networks and exchange mechanisms and particularly a good understanding of the chronology of individual sites so that the point at which these changes towards urbanisation occur can be pinpointed. The sudden move towards urbanisation in a previously less socially-structured region coinciding with the advent of contact from another, more sophisticated culture may therefore be significant. Where evidence of urbanisation can be identified and is definitely associated with Mycenaean pottery or other artefacts it is scored at 4.

The presence of centralised storage facilities in palace centres throughout the mainland is indisputable and the use of these facilities for the collection of agricultural produce, especially cereals gathered from the land under the control of the same palace centres, is well documented in the Linear B texts. It is not possible outside the context of a palace centre to be certain that centralised storage facilities were necessarily used in the same manner. It is possible, however, to identify in the archaeological record areas which clearly provided storage for the needs of individual families and much larger facilities which clearly had to have been used by a larger group of people. When, in addition, within a community this storage has changed in nature from single 'cupboards' or pithoi in individual dwellings to complete complexes such as granaries, it is necessary to seek an explanation for this change within the nature and organisation of the society itself. A larger complex for storage suggests the production of a surplus and therefore a more sophisticated management of agricultural practices. Such changes can be seen in

northern Greece (5.5.2). These have been scored at 3 when an association with Aegean influence is plausible.

2.7.3 Funerary customs

SUB-CATEGORY	SCORED AT
Mortuary systems	**4**
Grave types	**3**
Grave goods (Mycenaean Type)	**2**

Funerary customs are more accessible than religious practice from the simple fact that many more graves are preserved, while some even remain undisturbed from their moment of closure. The manner of burial can illustrate social practices and perhaps even belief and can also supply evidence of a hierarchical society by differences in the wealth of the graves, or elaboration of their construction (e.g. Lewartowski 2000). The skeletal remains themselves may provide some indication of the origin of elements of the population and the quality of their nutrition.

The domain of funerary custom has been divided into three categories – *Mortuary systems*, *Grave types* and *Grave goods (Mycenaean type)*. As has already been mentioned, the practices associated with the burial customs of a society may reflect religious preferences; however, since religion is a stronger indicator for acculturation than grave types or grave goods it has been kept separate (2.7.1). While there are many graves which contain Mycenaean grave goods, only in a few instances has the grave form been adopted for use in the local culture, without also adopting the grave goods.

Systems connected with the religion, or lack of religion of a society, are inevitably difficult to reconstruct. The practices of inhumation or cremation are an ideal place to illustrate the problems inherent in the examination of beliefs and the difficulties of interpretation. Does the practice of the Mycenaeans, where graves are used for multiple inhumation burials and earlier remains are seemingly callously swept to one side, indicate a lack of respect for the dead or simply the belief that once the flesh has decayed and only bone remains that the individual has 'passed on' into an afterlife (Cavanagh & Mee 1998)? The general lack of Mycenaean cremation burials in the heartland might support this idea. It is never present as more than a minority rite, though by the LH IIIC period instances of the practice can be

found throughout Greece (Cavanagh & Mee 1998, 135). However when moving further afield our understanding of these two simple practices becomes even more fraught with problems. In Anatolia, for example, the practice of cremation was, as far as it has been possible to judge from the cemeteries excavated to date, the 'normal' Late Bronze Age practice for the local inhabitants of the west coast.

However, there are cemeteries where many of the grave goods are to all intents and purposes as typically Mycenaean as those found in graves in Mycenae or Ialysos in Rhodes, and yet they have chosen to cremate the deceased (5.6.3). This highlights the 'human factor', the element of individual or communal choice, even where there are broad patterns of external influence or fashion, which cannot necessarily be accounted for or explained (Lewartowski 2000, 50).

The identification of Mycenaean mortuary systems is based on a cemetery or a group of graves (three or more) which display greater affinities with Mycenaean burial practice than with that of the local tradition in several respects, *e.g.* in the nature of the grave goods, the type of grave structure and the manner of burial of the individual/individuals. It is the *combination* of these factors which indicates the adoption of Mycenaean mortuary systems and a high level of acculturation of the local population. Thus mortuary systems are ranked first within this category and are scored at 4. To avoid 'double counting', the presence of Mycenaean grave types or graves goods is only counted separately in the unusual circumstances that a *different* part of the same cemetery has a number of graves with only one or other of these.

When it came to the burial of their dead the Mycenaeans used a number of different grave types ranging from shaft, pit and cist graves to tumuli, tholos tombs and chamber tombs, though the latter, often clustered together in large cemetery areas by far outnumber the other types. The frequency of each often depended on the latest fashion, for example pits and cists become rarer after LH II and were often used for child burials (Dickinson 1983, 62; Lewartowski 2000, 13). By LH III chamber tombs were by far the most popular place of burial. The use of pit/cist graves and tumuli was not of course, solely a Mycenaean burial practice. Pit and cist graves are often present within the larger structures of a tholos tomb or chamber tomb. Accordingly they have not been given a specific weighting when considering influences or the lack thereof in the regions under consideration. It is the presence of tombs mimicking or replicating tholos tombs or chamber tombs that is important for the assessment of Mycenaean acculturation. Tholos tombs built of dressed blocks and erected with precision to permit the dome to be sealed with a single stone require specialist knowledge so their appearance in any of the areas under study is particularly significant. A similar type of building technique used in Sardinia for Nuraghi

was thought for some time to have been influenced by the Mycenaeans, although a better understanding of their chronology and engineering principles has made this hypothesis untenable (see 3.3 & 5.1.6).

Chamber tombs consist of an open passage, the dromos, which led into a hollowed out rock-cut chamber, often through a narrower, covered entrance into which a blocking wall could be inserted after the burial of the deceased. Variations are confined to the size and quality of the structure and, in some cases, the presence of additional chambers off the main chamber. Chamber tombs were almost without exception cut into a relatively soft layer of Neogene limestone, widespread but not universally present in the Aegean area. Specialist knowledge was required both for the recognition of suitable rock and for the construction of the tomb. Sometimes, as in the cemetery at Armeni in Crete, the neogene layer was not very extensive so that where a hard limestone was reached, some tombs were abandoned unfinished. The use of the distinctive dromos and the specific limestone which they are cut into sets them apart from other types of rock cut tombs, such as those in the cemetery at Pantalica in Sicily which have no entrance passage.

It should be noted that where Mycenaean tomb types have been identified, the grave goods within almost always include some Mycenaean pottery, both imported and locally made. Even so the presence only of tholos or chamber tombs is a strong indicator of acculturation and has been ranked above the grave goods and scored at 3. So far, in the regions under study, there are only two examples where graves are of Mycenaean style while the contents belong purely to the local tradition: Torre Santa Sabina in southern Italy and Müskebi in western Anatolia.

When considering the grave goods accompanying the burials it is important to judge how far it is the assemblage which has been adopted rather than individual object types, while bearing in mind the regional variations within the Mycenaean world. In the Argolid at Prosymna, Mycenae and Dendra, some common characteristics can be seen in the pattern of offerings (Shelton 1996). During the LH III period it is usual to find an alabastron, undecorated kylikes and sometimes beads as grave goods. The inclusion of weapons and other bronze objects[23] is at this period unusual, though common in graves dating to the LH IIA and LH IIB period (Shelton *pers. comm.*). This pattern has been seen in other areas such as Messenia (Voutsaki 1998, 44-46). An examination of a similar sample of graves from central Greece illustrates different features in the assemblages, as in Thessaly where there are in any case only two simple grave types present (Lewartowski 2000, 15, 49-50). As Mee and Cavanagh note (1998, 113) the

[23] Where graves have metal work as the only indication of Aegean contact these have been counted under finished products in metalworking (2.7.7). to avoid double counting.

deceased are represented in death in many different ways and there appear to be no obligatory grave goods (Lewartowski 2000). The presence of Mycenaean funerary assemblages in local-style tombs is a strong indication of the convergence of Mycenaean and local burial practices, especially where they are also accompanied by items of local origin. Finds of this kind suggest some degree of acculturation and are therefore ranked at 2. Isolated examples of pottery in graves are counted as pottery only since they provide little information about change in the burial customs, and may have been no more than 'exotic' items.

2.7.4 Agriculture

SUB-CATEGORY	SCORED AT
Crops	**4**
Methods of cultivation	**4**
Storage methods	**2**

Advances in agriculture and stockraising are theoretically easy to detect by employing the recovery techniques standard in modern excavation. It is possible to identify changes in the crops used through the study of carbonised seeds and also the weeds recovered with them, which may indicate the style of field management and the techniques of processing. The varieties of domestic animals raised and eaten can be ascertained by faunal studies as can the contribution from hunting wild animals which may have a social or economic significance. The appearance of large storage areas, where there were previously none, would also suggest a change in the agricultural structure, implying the capacity to produce a surplus. Sadly much of this kind of data is missing for many excavations in the areas under study, and in practice the animal bone record is insufficient for useful conclusions at this stage.

Although further research needs to be done, the importance of archaeobotanical research in excavations today cannot be over-emphasised and there are already a number of pieces of evidence which suggest this can contribute to the study of acculturation.

Evidence in the domain of agriculture may be subdivided into *crops*, *methods of cultivation* and *storage methods*. Typical crops cultivated by the Mycenaean palatial centres have been identified on the basis of archaeobotanical evidence and information contained in the Linear B texts found particularly at Pylos and Knossos. It is clear that *major crops* included the cultivation of vines and olives, cereals and pulses. In the peripheral regions of this study, the record of plant remains is very patchy but the basic

crops since the beginning of the Bronze Age seem to have been wheats and barleys supplemented by pulses of different kinds (Harding 2000, 143). Other food supplies were gathered from the wild. The differences between this pattern and that of the Mycenaean heartland reflect environmental, historical and social differences while crop innovations must be the result of external influences where wild varieties were not available to be domesticated. Although it is difficult to determine exactly when the olive, for example, first began to be cultivated in southern Italy, the discovery of olive pips in conjunction with Aegean-style storage vessels and Mycenaean pottery at some sites is suggestive and may reflect a further correlation between changes in local practices and contact with the Mycenaean heartland (5.3.4). New crops normally require new agricultural technologies, new ways of using the cultivable land available and a reallocation of resources. Changes in this aspect of social activity are thus particularly significant if they can be detected. Evidence for new crops whose source is likely to be the Mycenaean world have therefore been ranked at 4.

Changing social and economic circumstances may also result in – or arise from – *changing methods of cultivation* with familiar crops. One of the most obvious of the changes is the introduction of plough agriculture with its implications for the exploitation of animals and for the choice of field size. Although debate still continues about the nature of Mycenaean land use for cereal crops, recent research on the archaeobotanical and archival evidence from Late Bronze Age palatial centres in Greece suggests that the palaces seem to specialise in the production of wheat and barley on extensively farmed areas (Halstead 1992, 65). This argument is backed by the discovery of weed seeds in two samples of grain from palatial Mycenae which are reminiscent of extensive field agriculture (Hubbard *pers. com.* on the basis of the work of Gordon Hillman). A far wider variety of crops may have been grown on 'small holdings' in the non-palatial sector. This is the picture suggested by the samples from Assiros (located in the north of Greece and thus well outside any Mycenaean palatial control) which show weed flora which are more suggestive of small plot cultivation (Glynis Jones 1983, 297, 305; 5.5.4). Such changes in agricultural practice, particularly if they reflect an introduction of extensive 'estate' farming, may also indicate increasing social stratification. Since the impact of these changes affects a wide range of social activity, it indicates the kind of fundamental change which could have resulted from acculturation and, where the evidence for such changes can be identified, these have been ranked at 4.

The significance of central storage has already been discussed (2.7.2) but the nature of the *storage methods* is also important, especially when these are adopted on an individual basis. The introduction, therefore, of large clay storage jars (*pithoi* in Greece or *dolii* in southern Italy) where none had been used before, in place of or in conjunction with the pits

or baskets typical of earlier periods, is another factor which may relate to processes of acculturation. Vessels of this size are almost always of local manufacture and indicate the establishment of specialised workshops for their production. Unlike their assumed Aegean prototypes, which had been in use since at least the Early Bronze Age, they are pointed-based and designed to be set in pits in the floor rather than to stand on it. They do not, however, require fundamental social changes for their adoption and have accordingly been ranked lower than the previous sub-categories and scored at 2.

Theoretically agricultural tools other than the plough might well contribute to defining innovations as Kilian suggested (1990, 452-453, fig. 6) in the case of sickles. His particular examples, however, could equally be explained by the survival of bronze tools in tombs and palatial contexts in contrast to recycling in agricultural communities.

2.7.5 Defensive provision

SUB-CATEGORY	SCORED AT
cyclopean circuit walls	**4**
Fortifications	**2**

Mycenaean sites in Greece and their Middle Bronze Age predecessors are typically located on defensible 'acropolis' hills. The construction of massive fortification walls in the 'cyclopean manner' is a feature of many of these sites from LH IIIA onwards. Their construction is very distinctive but it requires the appropriate material – hard but fragmented limestone – to be available locally. Similar building techniques in areas which did not have this form of construction in their local tradition, *e.g.* Sicily, may well be the result of Mycenaean influence during the period when this becomes most intense. The appearance prior to systematic Mycenaean contact, of other kinds of fortification in peripheral areas where it had not existed may betray even earlier Mycenaean influence. (As will be seen below, other influences than Mycenaean may result in specific forms of defensive works – casemated walls, used by the Hittites and also seen in Macedonia (5.5.5.)).

Thus it is useful to divide the domain of defensive provision into two categories - *cyclopean circuit walls* and *fortifications*. In some areas under study the introduction of cyclopean-style masonry for circuit walls has been observed. Since the majority of examples of this type of walling have been discovered through survey work, some are not yet associated with an identified settlement. Walls that show a distinct similarity with the

cyclopean walling of the Mycenaean heartland are scored at 4. There are, however, other examples of fortification in different styles of masonry in many of the areas under study, which indicate change. The occupants of previously unfortified settlements, often those in strategically important positions, chose to build substantial structures to provide defence, even in cases where the natural defences were sufficient on their own, such as on Pantelleria (5.2.5). In many cases these fortifications may have formed 'statements' of the status and prestige of the rulers who had them constructed. On their own, these fortifications would not be sufficient indication of Mycenaean contact but where postdating Mycenaean contact and associated with Mycenaean style artefacts they are scored under this heading at 2. This of course can only be true if there is no tradition of fortification in the region as a whole.

2.7.6 Architecture

SUB-CATEGORY	SCORED AT
[Religious	4]
Public	3
Domestic	2

Architecture by its nature tends to survive well in the archaeological record. 'Foreign' architecture is most obvious where the construction techniques and materials used are different from those of the native populations. Well-dressed conglomerate and ashlar blocks are a feature of Mycenaean architecture and the building plans are more or less rectangular. The adoption of foreign architectural forms may, however, represent no more than a recognition of practical innovations for prestige buildings. Buildings in the Mycenaean heartland show a broad variety of fashions and techniques but the use of large ashlar blocks and well-defined doorways is a consistent feature. In order to determine whether acculturation has extended as far as the building techniques in a given region it is first necessary to look at the local traditions to ensure that no false parallels are drawn. When, however, buildings are discovered, such as at Pantalica in Sicily, where the style of construction is so completely different from that of other buildings in the area then the possibility of external influence should be considered.

For the purposes of classification, the domain of architecture has been further divided on the basis of function into three broad headings, which cover the majority of building types identified in the areas under study – *religious*, *public* and *domestic*. The interpretation of the function of a building relies primarily on its contents, which are not always preserved

sufficiently to be sure of its use. All too often functions have been assigned by excavators on the basis of speculation.

In the assessment of acculturation the most important buildings would be those of a religious nature but in the areas under study no single religious building of a completely Mycenaean nature has been identified – i.e. solely Mycenaean both in construction and contents. There are however, buildings and complexes which have been identified as religious centres on the basis of the local material culture, and in some cases Mycenaean cult objects and vessels which had become part of the religious repertoire of that building are present. In these cases they have been included in the evidence for religion. (Notionally, examples of religious architecture would be scored at 4.)

Public buildings may include larger or smaller palace complexes (*anaktora*) or administrative buildings. The former are absent so far from any of the areas under study – either in the local tradition or imported as a concept from the Mycenaean world. There are, however, substantial rectangular buildings to which an administrative function has been assigned, either on the basis of the presence of some kind of official stamps or archives or because of their location and size in comparison with other buildings. For example the building at Pantalica has been suggested to be both an anaktoron and an administrative building (5.2.6), though its use cannot be conclusively proved as the occupation levels within were so disturbed and produced few finds that could assist in the interpretation of its use. Where a building may plausibly reflect Mycenaean influence it has been scored at 3 because of the added implication of significant changes in social organisation.

Domestic architecture of a Mycenaean style with rectangular ground plan is less likely to be adopted, as the local traditions of home construction tend to withstand change far longer. In many cases only a few features were adopted from the Mycenaean tradition while the local building practices continue. For example in areas where circular or oval huts were traditional, the appearance of domestic structures with rather 'squarer' ground plan or the addition of rectangular courtyards to round structures could be seen as being influenced by Mycenaean ideas. When Mycenaean domestic structures were adopted, this tends to be in areas where Mycenaean ideas had already been current in other spheres of social activity. In the case of Miletus, which had already shown strong affinities with the Mycenaean tradition in material culture, burial practices and perhaps even religion (5.6.6), domestic structures consistent with types found in the heartland came into use towards the end of the Bronze Age. Where either of these architectural attributes is associated with other Mycenaean finds, a score of 2 has been recorded.

2.7.7 Metalworking (Mycenaean-Cypriot)

SUB-CATEGORY	SCORED AT
Workshops	4
Moulds	3
Finished product	2
Ingots	1

Metalworking, and pottery (below 2.7.8), are technologies which impact on many domains of social activity, but both can be considered as domains in their right which include evidence relating to trade, technology, products and fashions.

Metalwork is frequent in the archaeological record and readily adopted for local use. Since imported metal objects are readily divorced from their originators, they are among the least significant indicators of acculturation. There are, however, cases where the imported objects are copied and adapted in local workshops and it is the identification of local manufacture that proves more significant in addressing the level of acculturation, rather than the objects themselves. Many scholars prefer to talk of objects being part of a Mediterranean *koine* rather than allocate any specific origin, particularly as there is often flourishing local production of these objects, such as in Italy or Sardinia.

In terms of assessing the acculturation of any region it is the identification of local workshops for the making of metal products which is relevant, as is an understanding of the preferred methods of manufacture employed by the local craftsmen. Often these workshops tend to cluster close to sources of metal ores, as is the case in Sardinia, the Po valley in Italy and in Cyprus. While the difficulties of identifying the source of influence for many of the finished products has already been highlighted, the presence of foreign ores, tools or moulds in a structure or area identified as a workshop may indicate, if not the presence of foreign craftsmen, at least the exchange of tools and materials as well as ideas between the local and outside populations. With few exceptions the workshops that have been identified in Sardinia, for example, seem not only to use ores exported from Cyprus but also Cypriot techniques (5.1.7). Workshops producing Aegean-style metalwork, whether identified or inferred from local variations, are strong indicators of external influence and are ranked at 4.

Moulds for the manufacture of tools and luxury items are not frequent, and as portable items are not necessarily the best indicators of acculturation. However there are examples of objects where a mould has been modified or only part of a mould has been used and it is evident that the craftsman is either trying new techniques and adapting their use to more

familiar methods or has misunderstood the precise methods needed to produce a finished product. This can clearly seen in Epirus and Albania where many of the finished products, particularly swords, have peculiarities in their design which can only be explained in this way (5.5.7). Where moulds or the objects made from them reflect the adaptation of foreign traditions these are considered to be moderately strong indicators of acculturation and are ranked at 3.

The finished products themselves fall into three categories. First, there are objects of ornamental and limited use, such as the tripod stands and shovels of local manufacture, whose inspiration is obvious or whose elaborate decoration can be traced either locally or further afield. The tripod stands, in particular, would form striking focal points in social or ceremonial contexts. Second, there are functional frequently produced objects, such as swords and sickles which were made to the same patterns in many parts of the eastern and central Mediterranean. These are all too easily divorced from their place of manufacture, if indeed this can be determined. Only when they have been locally adapted to create hybrid products, *i.e.* those which have a combination of foreign and local traditions of manufacture or ornamentation, is it evident that they had been adopted to suit local needs and were being produced by local craftsmen. Finally there are universal tools whose form is so simple or basic (chisels, hammers etc.), that they betray no clue as to their inspiration and contribute nothing to an understanding of acculturation. Objects falling into the first two categories have been ranked at 2, while those in the third are omitted.

Where it has been possible to identify the source of the ores used in the manufacture of items, this too may contribute to the full picture of acculturation. Although such raw materials reflect the sources and routes of trade, without other indicators of acculturation they are not especially significant. The use and origin of one specific form of raw material, the copper oxhide ingot, has been discussed elsewhere (4.3.2), as has their role within the Sardinian economy (5.1.7). Where evidence of this kind has been reported it is ranked at 1.

2.7.8 Pottery manufacture

SUB-CATEGORY	SCORED AT
Kilns/workshops	4
[Dolii/pithoi/storage vessels	3]
Locally made Mycenaean coarse ware	3
Locally made Mycenaean fine ware	2
Grey Ware (wheel-made)	2
Local/Mycenaean mixed	2
Imported Mycenaean	1

The existence of workshops and kilns for the local[24] manufacture of local Mycenaean-style wares is the strongest indicator in this category for the extent of Mycenaean influence or the acceptance or adoption of Mycenaean innovations by the local population, and has been ranked at 4. The use of large storage vessels (dolii/pithoi) of Aegean style has already been discussed in the agricultural context and their presence has been scored under that heading (2.7.4). The manufacture of Mycenaean coarse wares is of equal significance since these were chiefly used for the practical functions of storage and food preparation, social activities which are among the most resistant to change (Van de Leeuw 1993, 241). Evidence for such pottery is scored at 3. Another category which clearly illustrates the interaction between Mycenaean technologies and local traditions is the wheel-made Grey Ware found at a number of southern Italian sites. This has been scored at 2 as have examples of the adoption of Mycenaean technology or details of shape or decoration into other local wares, illustrating the fusion of ideas and practices.

Most of the Mycenaean pottery was fine ware intended for what may be termed 'table' use or display, and it is these types which were most frequently imitated locally. Small closed vessels such as those frequent in Mycenaean graves are imitated much less frequently. In general most of the locally-made Mycenaean fine wares can be distinguished visually from the imports although in several cases petrographic or chemical analysis has been needed to determine a probable origin. Lucia Vagnetti and Richard Jones (1988, 335) between them

[24] Pending a much more extensive application of analytical techniques the identification of local Mycenaean pottery is visual, on the basis of fabric, inclusions, firing techniques and appearance. This distinguishes it from Mycenaean pottery which has the appearance of being made in the heartland, but does not imply that it was made within any particular distance from the site where it was found.

established the following criteria as guidelines for the identification of the manufacture of Mycenaean pottery in local workshops:-

1. Appearance and quality of the fabric.
2. Use of shapes unknown in the Aegean and belonging to the local tradition.
3. The use of debased Mycenaean shapes and/or patterns.
4. An unusual combination of different patterns on the same vessel.
5. An unusual combination of shape and pattern.
6. The use of patterns rare/unknown in the Aegean.

For Mycenaean pottery to be produced, local potters in Northern Greece and Italy had to learn three basic technologies which were different from their own traditions: **wheel-throwing**, the use of **slip paints** and **manipulation of kilns** at higher temperatures. Local Mycenaean pottery tends to imitate the decoration of standard Mycenaean (not always successfully), but not necessarily the shape. Thus it is possible to find Mycenaean patterns on pottery shapes common in the indigenous cultures. The placing of motifs does not follow the same canons: linear decoration for example is placed in standard positions on the 'genuine article' such as around the stem and lower bowl of a kylix. In local pottery, linear-only decoration is much more frequent. Although locally produced, this pottery need be in no way inferior in the quality of the fabric. Some locally produced Mycenaean is hard to distinguish from the imports.

Ways of defining the differences between local and imported Mycenaean pottery from Toumba Thessalonikis in Macedonia with the aid of petrographic analysis and other techniques, are currently under study by Vangelio Kiriatzi. In Table 2.3 the criteria which she presented in a paper given at a seminar in the Faculty of Archaeology and Anthropology at the University of Cambridge in 1996 has been expanded below. These seem equally valid for the pottery from other areas and provide a framework for examining the extent to which it represents acculturation. Studies of the technology transfer which was necessary in southern Italy and Macedonia using a variety of analytical techniques are presented by Buxeda i Garrigos *et al.* (2003). This highlights the technological variability of the locally produced pottery and the relatively large number of local workshops involved.

Imported Mycenaean vessels tell us little about the extent of acculturation and are accordingly ranked at 1, while the local imitations suggest a much greater involvement with Mycenaean social practices or level of adoption of Mycenaean style objects into local traditions and so may be ranked at 2.

TABLE 2.3 DIFFERENCES BETWEEN LOCAL AND IMPORTED MYCENAEAN

IMPORTED MYCENAEAN	LOCAL MYCENAEAN	LOCAL POTTERY
Kiln	Kiln	"Bonfire"
High temperature	Moderate/high temperature	Moderate temperature
Wheel made	Wheel made	Hand fashioned
Slip paints	Slip paints	Burnished, incised
Calcareous clay	Calcareous and non-Calcareous clays	Non-calcareous clay
Mycenaean shapes	Mycenaean shapes, some local shapes	Local shapes ?Mycenaean shapes
Mycenaean patterns	A few Mycenaean patterns	?Mycenaean patterns
Linear subsidiary decoration	Linear-only decoration common	Incised

Pottery has been used to construct chronologies and as an indicator of change in societies but little has been done to examine why various shapes were adopted and whether particular shapes were transported. What was popular and did it vary throughout the period? Was it dictated by taste, fashion or something more significant like ritual? How far do the innovations of shape or decoration reflect innovations in contexts of display and status or in the occasions of social bonding? The data gathered for each area according to date, quantity and context enable the extrapolation of trends in the imported wares and their imitations according to region and date (Tables 5.3, 5.7, 5.8, 5.11, 5.12, 5.17, 5.18, 5.19, 5.24, 5.25) and comparison of the patterns for each region (Table 6.2). Analysis of imported pottery from different areas has in many cases suggested a particular area of the Aegean with which certain areas had contact. As the analytical database is enlarged, it should become possible to identify particular production centres in the Mycenaean heartland and their favoured destinations, whether in the western or eastern Mediterranean.

2.7.9 Application

In the following chapter the local characteristics of each region have been set out with reference to the same cultural domains in order to provide the background to Mycenaean contact and potential influence. Particular attention is paid to the changes in material culture which can be observed during the period of Aegean contact and to inferring the culture processes which may have taken place during the period. In Chapter 4, the quantity of imported material, particularly pottery, and the routes by which it might have reached its destination are examined in order to chart the changing patterns of contact in time and space and to identify possible interchange points – prehistoric ports of trade - between the maritime and overland elements of the trade and contact.

In Chapter 5 the evidence for each domain of social activity is set out region by region on the basis of the criteria discussed above, to justify the figures for presence presented in Table 5.4, 5.9, 5.13, 5.15, 5.20 & 5.26 and to form the basis for comparison between regions, whether at the level of individual categories of evidence or complete cultural domains. The accompanying discussion will highlight categories of evidence which from their character or context suggest or refute extensive acculturation of a native population or settlement of an intrusive one. Although there could be any number of intermediate levels of acculturation, for the purposes of this study only three, weak, moderate and strong have been presented in Table 2.2 (and in the graphic Tables derived from this (5.5, 5.10, 5.14, 5.16, 5.21, 5.27). These are, of course, not absolute levels, but relative ones, intended to enable valid comparison between regions.

PAGE NUMBERING AS ORIGINAL

3. THE PARAMETERS OF THE EVIDENCE: CULTURES AND REGIONS

No discussion of Mycenaean influence on any area is valid without reference, at least in summary, to the developments occurring within the indigenous population, in terms of the geography (3.1) and the location of settlements within the landscape, in terms of settlement structure and burial practice and in terms of technology, especially pottery- and metal-working and the evidence all these provide for social change and development. In the sections that follow (3.3-3.8) an outline of each of these aspects is provided for each region as a basis for later discussion of this interaction. The summary of the significant changes, or lack of them, occurring in each region, which may have resulted through contact and exchange with the Mycenaean world is carried forward to Chapter 5.

Comparison of the pace of influence and development in each area is made more complex by the different culture sequences defined and the inconsistency in the application of data relating to absolute chronology (3.2). As far as possible dates have been standardised with reference to Mycenaean pottery phases. Section 3.9 provides a brief outline of the history of the Mycenaean heartland where these influences may be presumed to have originated. A discussion of the character and significance of possible Mycenaean imports and influences is reserved for Chapter 5 but their first appearance and progress period by period is examined in Chapter 4.

3.1 THE GEOGRAPHY AND MINERAL RESOURCES

Unless other references are given the geographical information in this section comes from Géologie des pays europœéns, Comité National Français de Géologie, 1980.

3.1.1 The southern central Mediterranean (Fig 3.1)

The southern central Mediterranean, which comprises for the purposes of this thesis, Sardinia, southern Italy, Sicily and the Aeolian Islands, contains a wide variety of geographical contrasts. Climatically the area experiences the hot summers and wet cooler winters of the Mediterranean. The high mountain ranges, the southern Apennines, the Sila and the Aspromonte of the southern peninsula and the Peloritani mountain range in northern Sicily have comparatively harsher climates than the lowlands of Apulia and the islands. Rainfall and surface water vary greatly in distribution and thus provide the classic setting for a transhumance economy, with highlands and lowlands exploited in rotation according to the season.

Sardinia, the second largest of the Mediterranean islands, occupies a relatively central position in the west Mediterranean. Historically contact has been made through the several large natural gulf-harbours along the south (Cagliari) and the west (Sulci, Oristano) coasts where there are numerous bays, lagoons and small sandy inlets. The much more rugged eastern coast, precipitous and traditionally difficult of access by sea faces the shores of Italy some 250 km distant. Pausanias writing in the 2nd century AD describes the island as follows:

> *'The northern part of the island and that towards the...mainland of Italy consist of an unbroken chain of impassable mountains. And if you sail along the coast you will find no anchorage along this side of the island, while violent but...irregular gusts of wind sweep down to the sea from the tops of the mountains'* (10.17.10).

Geologically the island is contiguous with Corsica and together they form what is commonly known as the Sardo-Corsican Massif. The structure of this massif consists of a Paleozoic granite foundation which surfaces predominantly in the regions of Sarrabus, Nuoro and Gallura. In contrast to Corsica's jagged mountainous profile Sardinia is

composed of diverse landforms ranging from large lowland plains formed by Quaternary deposits and recent alluvium through to dissected upland plateaux and hills of Miocene maritime deposits (limestone, sandstone and clays) with some recent volcanic activity. Sardinia is rich in ore deposits including silver and copper. The two most important deposits for copper are at Funtana Raminosa (Gadoni, central Sardinia) and Calabona (Alghero, NW Sardinia) both of which have been worked since the Bronze Age (Galli 1991)

The climate is typically Mediterranean with hot, dry summers and cooler winters. The scarcity of rainfall, severe summer droughts and unpredictable winds have led to Sardinia being marginal in socio-political terms. Rivers and streams are not numerous, are generally are too small to be navigable and with few exceptions dry up over the summer. The five main rivers, therefore, the Coghinas, Tirso, Flumendosa, Mannu and Cedrino experience a much reduced flow during the summer (Brandis 1982). The only natural freshwater lake is Lago di Baratz in the north-west. Of great importance therefore are the numerous freshwater springs that occur throughout the upland zones.

Sardinia's wide variations in topography, hydrography, climate, soil quality and natural resources have led to clear regional patterns of cultural adaptation. Eighteen major regions are recognized today, each reflecting a more or less distinct history of settlement, land-use patterns and socio-political relations. Regional names can in most cases be traced back to the beginning of the 10th century AD and in a few cases as far back as the period of Roman rule (Asole 1982). In archaeological terms the island can be split into three major zones: *the lowland plains*, in the northwest the sandy plain of La Nurra, to the east the plain of Anglona which stretches between the valley of the river Mannu to the east and to the south-west the Coral Coast; *the middle uplands*, such as Logurdor, Marghine and Trexenta and the *interior mountains*, which at over 600m in elevation constitute over half of the island's territory.

An important feature of southern **Italy** lies in the contrast between the lowland alluvial plains and the coastal strip. The geology of the area is markedly varied. Limestone dominates the main Apennine spine in Campania, Basilicata and northern Calabria with

interspersed volcanic outcrops in the region of Basilicata and Campania, which provide fertile soils and rich mineral sources. The limestone of the Murge plateau and the karst geology of the Gargano, which provide a dry Mediterranean climate, dominate Apulia. southern Calabria consists of igneous granites, diorites and schists. These form high and often inaccessible blocks with the result that they provide little to no agricultural potential but yield a variety of mineral ores.

Unlike the Ionian coast of Apulia and Calabria, the Tyrrhenian coast of southern Italy, especially to the south, particularly the western coast of Calabria and Basilicata and Campania is relatively inaccessible from the sea. The Sila and Aspromonte mountains and the southern Apennines all form large plateaux with marginal terraces that decrease in height and end in steep cliffs a short distance from the sea. This leaves only a narrow coastal plain between the cliffs and the sea. The only wide and fertile plains in the region are those of Curinga and Gioia Tauro. The Catanzaro trough is the only natural pass between the Tyrrhenian and Ionian coasts.

The most important mining resources in peninsular Italy are the ore beds in Etruria on the north side of the Tiber —Monti della Tufa, Colline Metallifere, Elba and Monte Amiata.

In north-eastern **Sicily** the Peloritani Mountains consist of similar rock types to the Calabrian massif. To the west the Madonie and Nebrodi ranges are formed from a variety of limestones, clays and shales. Eastern Sicily is dominated by Mount Etna and its volcanic lavas, which provide fertile soils along its lower edges, particularly in the region of Catania to the south. There are few extensive alluvial plains other than that of Catania and the coastal area of Marsala to the west and fertile soils are largely concentrated along the wide river valleys throughout the island, particularly the Salso, the Platani and the Caltagirone.

The **Aeolian islands** owe their origin to volcanic activity in the area and consist of lava and ash, with rich volcanic soils but little surface water. Their prolific sources of obsidian, exploited extensively during the Neolithic, were seemingly insignificant by the Early Bronze Age, but the island's prominent position in relation to the exchange routes for the

central Mediterranean ensured continued Bronze Age communities of some sophistication, in particular on the island of Pantelleria.

3.1.2 Epirus and Albania (Fig 3.1)

Epirus and **S. Albania** comprise a single geographical unit (the source of much political dispute in the past century) bounded to the east by the Grammos and Pindos mountain ranges, which are heavily wooded. It is a land of precipitous mountain ranges running NNW-SSE separated by large rivers such as the Aoos, which runs north into Albania and the Adriatic and the Acheloos, which runs south to the Gulf of Corinth. There are few natural breaks in the mountain ranges and only the river Thyamis cuts directly to the sea through narrow gorges. Much of the formation is limestone and consequently barren. Elsewhere lakes and small alluvial plains have formed as at, for example, Ioannina (where Kastritsa is located), Kalbaki-Konitsa and Korçe/Koritsa (in Albania, where the sites of Tren, Maliq and Barç are located). These are the only areas which provide extensive arable land while the higher mountain regions have traditionally been used only for summer grazing and are bitterly cold during the winter months. The extent of arable farming in the prehistoric period on sheltered upland slopes remains a matter of debate (cf. Vitsa: Vokotopoulou 1986; 340; Halstead 1987, 199) No significant mineral resources are known. The coastal fringe has a milder climate and today olives are grown widely. It is in this area that the only known example of a Mycenaean tholos tomb north of the Gulf of Prevesa, is located. Erosion and alluviation are extensive throughout the area and infilling has taken place. Ephyra for example, was once a coastal site, overlooking a harbour that could moor hundreds of ships (4.2.4).

3.1.3 Macedonia (Fig 3.1)

The core of the **Macedonian** landmass is the Serbo-Macedonian massif, which is a band of ancient metamorphic and igneous rocks dominated by schists, amphibolites and marbles (Higgins & Higgins 1996, 90). The area is bounded to the west by the Pindos

range, to the south by Mount Olympus and the Cambunian mountains and to the east by the river Strymon (which today forms the boundary with Thrace and apparently has always been a natural cultural division). To the north is a chain of mountains which form the border with modern FYROM and Bulgaria, a mountainous barrier broken only by the Axios and Strymon rivers which rise to the north. This modern political boundary reflects a natural geographical division between the climates of the Mediterranean and the Balkans and, in the period of this study, a cultural one. One major river flows wholly within Macedonia, the Haliakmon, with its head waters close to the Korçe/Koritsa basin. Flowing first SE before it turns NW in the region of Aiani and reaches the Veria plain through a gorge which is still today almost impassable. Easy passes exist from modern Servia to Elassona in Thessaly and in the opposite direction to the Korçe/Koritsa basin and lakes Ochrid and Prespa.

Macedonia may today be divided geographically into three parts. Western Macedonia with its mountains and high plateaux is a focus of pastoral activity and central Macedonia which now comprises the large alluvial plain (much of which was open sea in the Late Bronze Age (Sakellariou M.B., 1982, 24) where the Axios, Loudias and Haliakmon rivers flow into the Thermaic gulf, the Langadas basin and the peninsulas of Halkidiki, is to a large extent agricultural. Eastern Macedonia is now the region from the Strymon to the Nestos with an alternation of lowland plains and high mountain ranges. The climate is more continental than Mediterranean with a distinct variation in temperature from north to south and in rainfall from east to west. The climate in Chalkidiki is however, milder and has for centuries supported olive cultivation.

Gold from Macedonia and Thrace has been exploited for around 5000 years. It occurs naturally on Thasos and Mt Pangaion and could have been mined and also occurs as placer deposits in the rivers of central Macedonia such as the Galliko (ancient Echedorus). The early use of gold in the area is shown by the presence of a gold bead from Late Neolithic deposits at Sitagroi (Elster & Renfrew 2003, 335, SF 4803) and by gold pendants from Paliambela among other sites (Kotsakis & Halstead 2004, 412, fig.6:11). (A further hoard of Neolithic pendants, recently recovered from illicit dealers, is believed to have come from the district of Pella). The primary deposits are in the

metamorphic rocks of the Rodope and Serbo-Macedonian massifs as well as the island of Thasos off the shore of Thrace. While a case can be made for the exploitation of gold in central Macedonia during the period of Mycenaean contact the absence of such contact in eastern Macedonia or Thasos may indicate that these deposits were not being exploited in the Late Bronze Age. It has been estimated that around 300 tonnes of gold were extracted from this region from 1200 BC to AD 50 (Marinos 1982), much of it during the reign of Philip II from 359-336 BC, an indication of the amount available in the prehistoric period.

3.1.4 Western Anatolia (Fig 3.1)

Turkey lies in the north east corner of the Mediterranean basin and forms a geographical as well as metaphorical crossroads between Asia and Europe. The entire landmass consists of remarkably varied geographic, geologic and climatic zones which accounts for the different regional human activities from prehistoric times until the present day. Over half of Anatolia consists of a vast interior plateau with a semi arid climate that reflects its high altitude – dry hot summers and long winter snows. This core is girded by the Pontic mountains to the north and the Taurus range (Cilo Dağ) to the south, both with typical alpine climates. These two mountain chains meet in the east to form a complex range of mountains where there are volcanic cones such as Mount Arafat, which stands at 16,945ft. The western region which bounds this plateau (and forms the primary area of Mycenaean contact from an early date), has a much milder Mediterranean climate. Here undulating plains and temperate river valleys lead from the interior to the sea.

The bedrock of the region is divided into the İzmir-Ankara zone roughly to north of the Gediz river and the Menderes massif to the south. The İzmir -Ankara zone is made up of flysch sediments, limestones, volcanic rocks and serpentines mostly of Early Triassic to Late Cretaceous age. The rocks of this zone have a chaotic structure produced by tectonic movements and are equivalent to parts of the Pelagonian zone in Greece. The Menderes massif is an area of older metamorphic and igneous rocks similar to the Attic-

Cycladic metamorphic belt to the west. The Menderes massif has a concentric structure, roughly decreasing in age and degree of metamorphism from core to edge.

The city of İzmir, formerly Smyrna, lies at the eastern edge of the 24km long gulf of İzmir near to the mouth of the river Gediz (ancient Hermus). Spacious, sheltered and accessible it has long been one of the favoured ports in the Mediterranean. In addition to its fertile plains it has from earliest times been the centre of export for mineral and agricultural products of the interior, via the valley of the Gediz river.

The shoreline at the far eastern end of the Gulf of İzmir, in common with many other parts of this coast, has advanced since ancient times. A small number of streams have transported sediment from the surrounding hills and dumped it in the bay. The advance has been calculated as being a maximum of about 1km, which was nevertheless sufficient to have turned the peninsula which formed the site of Tepekule into a low hill in the coastal plain (Higgins & Higgins 1996, 140).

The wealth of Sardis at its zenith was due to the placer gold deposits of the Pactolus river (Herodotus 5.101.2; Young 1972). The gold of these deposits originated in the metamorphic rocks of the Menderes massif to the south. Placer gold exploitation is extremely easy but it is known that the Pactolus was exhausted by Strabo's time, by the end of the 1st century BC (Strabo, *Geography*, 13.4.5). The metal extracted from the rivers in this region always contains a proportion of silver making the natural alloy electrum, which was used for the coinage, although during the reign of Croesus the metals were separated to produce the pure gold and silver used for coinage. Silver was also produced together with lead in the Balya mine in the Balikesir region (Higgins & Higgins 1996, 142).

3.2 THE CHRONOLOGICAL FRAMEWORK

Compiling a comparative chronology for the central Mediterranean, Greece and Turkey (Table 3.3) is beset by a variety of problems. Not only does each individual area use different terminology to define the same absolute periods (Middle, and Late Bronze Age in Italy being within the same time span as the Late Bronze Age in Greece while the Final Bronze Age extends into the Greek Iron Age), but also because the absolute chronology for each area is based on different premises, even in the Mycenaean heartland.

The broad outlines of mainland Greek cultural history are clear (3.9) and the established framework is based on correlations with Egyptian historical chronologies (Warren & Hankey 1989). New data, however, provided by a variety of scientific techniques, has brought some of these into question and, at times, fierce debate. The conventional dates for the start of the period together with those for the Thera eruption and for the Neo-palatial period in Crete, which must all correlate, have been disputed by Manning and others on the basis of dates derived from Greenland ice cores and a series of C^{14} determinations (Manning 1999). The question remains open, but already there has been a shift upwards (older) in the date accepted for the Thera eruption and for everything that correlates with it. New dendrochronological and C^{14} wiggle-matched dates from Assiros associated, in separate levels, with LH IIIC and PG pottery indicate that the dates for the start of these periods should be raised by at least 50 years[1] (Newton, Wardle & Kuniholm 2005 *contra* Jung and Weniger 2002).

These dates, however, are exceptional. In the first place, the general reliability of dates between about 1200 and 1000 BC is in question since the number of fluctuations in the calibration curve is so great. There are very few sites where large numbers of C^{14} samples have been collected systematically enough to provide a convincing *collective* chronological determination, let alone sets of linked and wiggle-matched dates taken from a single timber. Dendrochronology offers greater hope of resolving these issues in

[1] Protogeometric pottery is sealed under the floor level of a structure whose timbers were cut down in 1078BC +4/-7 (dendro) or 1075BC +/-7 (C^{14}).

the long term, but results are still isolated and subject to revision. Even those obtained for the Kaş wreck (Kuniholm *et al.* 1996; Pulak 1997, 4; Wiener 1998, 314) are currently under review. Many more samples need to be discovered and processed before the hope of a secure absolute chronology can be realised.

In the peripheral areas, moreover, as discussed in this study, there are different bases for the chronologies and thus different levels of reliability. The accepted chronology for Macedonia (before the new dates) and Epirus is largely based on their relationship to the Mycenaean world. That for Italy places a great deal more reliance on C^{14} dates (which may or may not have been calibrated) while still relying on the more or less frequent examples of Mycenaean pottery and a more or less accurate recognition of their style and place within the Mycenaean pottery sequence. In the case of Anatolia, there is input from a second historical chronology, that of the Hittite kings (though ultimately this derives from cross links with Egypt).

Internal inconsistencies within each region complicate the problem, and it is necessary to establish a single chronological framework on the basis first of the imported Mycenaean pottery and second, where this is limited in quantity, on the locally manufactured pottery which derives from it technologically and stylistically. Recognition of these inconsistencies and an attempt to address them has been one of the underlying tasks of my study (4.5.1). In turn this depends on the quality of the evidence presented by the scholars, especially the excavators, working in each area. Once this has been done, the reliability of such comparative chronologies as the one that I have developed and presented in Table 3.1-3 is more transparent. First, however, it is necessary to set out the nature of the problem in each area.

3.2.1 Data control

Four limiting factors circumscribe the examination of the data for the regions under study. First there is the erratic focus of archaeological research as chance finds or political circumstances draw attention to one area or deflect it from another. Second, there is considerable variability between the types of sites and contexts which have

produced evidence. Third, there is wide variation in the quality of the archaeological reports and very few 'final' reports. The only final publications currently available for major sites in the whole of the area under study are Heurtley (1939) for early excavations in Macedonia; Hänsel (1989, the stratigraphy), Hochstetter (1984, the local pottery, Jung (2002, Mycenaean pottery) for Kastanas (though the publication of the wheel-made Iron Age pottery is still pending); Blegen (1953; 1958) for Troy, Lloyd & Mellaart (1965) and Mellaart & Murray (1995) for Beycesultan and Basedow (2000) for the cemetery site at Beşik Tepe. Fourth, there are specific problems with applying a relative chronological framework to each area, let alone to individual sites. Each of these must be taken into account in interpreting the data to ensure as high a level of comparability as possible and to avoid false conclusions based on partial evidence.

The variation in the quality of the reports from site to site results in part from the date of excavation and in part from the zeal of the excavator in publishing. While an attempt has been made to establish a statistical basis for sites in terms of area excavated versus quantity of material recovered, it has not been possible for most, since this data is not published in excavation reports. Many sites in Italy for example, along the coast of the Adriatic, were excavated early this century and the publication of the material is often limited. Indeed some of the sites have been destroyed as a result of modern building needs. One such site is Scoglio del Tonno, which is now completely covered by the modern town of Taranto. Excavations were carried out here in 1899 and 1900 and the records show that only one building was completely excavated, a second partially and three others simply noted. The pottery recovered from the excavation, now on display in Taranto museum, is of exceptional quality (5.3.8 and Fig 5.34 illustrating Mycenaean floral motifs), but no attempt was made at the time to analyse the material statistically and research in that area is no longer possible.

Other sites have been excavated more systematically, but little has been done about publishing more than individual pieces 'of interest', which are then cited in further publications, sometimes up to seven times. The rhyton fragment from Nuraghe Antigori in Sardinia being one such example: Murray *et al.* 1900, fig 75,1114; Lo Schiavo & Vagnetti 1980 Tav 2:2; Ferrarese Ceruti 1981b, fig M4; Ferrarese Ceruti 1982b, pl 63,

5; Vagnetti (Ed.) 1982a, Tav LXIII, 5; Lo Schiavo, Macnamara & Vagnetti 1985, 7; Vagnetti 1993b, 149, Fig 4.3. This inevitably has contributed to an inaccurate impression of the quantity of Mycenaean pottery, for example, recovered from some areas, not helped by publication, on occasion, of different pieces of the same pot separately – for example pieces of the pot illustrated in Fig 5.37 (Vagnetti 1983; 1984; 1999 amongst others). The study of the Mycenaean pottery from Broglio di Trebisacce recently published by Bettelli (2002) is a welcome addition to the database.

The different types of context that Mycenaean or Mycenaean influenced artefacts have been found in, in different regions, makes an evaluation of their role in the acculturation of the area more difficult. The bulk of the material from Macedonia for example comes from the excavation of settlements, while the majority of material from Epirus comes from grave contexts, a problem that is unfortunately not restricted to these areas.

3.2.2 Relative chronology

The problem of matching chronologies between regions remains paramount. While Mycenaean pottery chronology remains the only constant reference for dating local material, and even that changes as our understanding of its development and regional variation improves, the problem of comparative chronology between sites even in a single region (in Macedonia for example) remains an issue. This variety of contexts also poses a number of problems in looking for comparative material from the Mycenaean heartland. Mountjoy's work, especially her *Regional Mycenaean Decorated Pottery* (1999) should be useful for the correct identification of pottery styles and deriving a date from these with greater or lesser precision. The pottery illustrated, however, is mainly from grave contexts and while it is useful in finding comparanda, it is still debatable how far these are in fact valid for material found in settlement sites. The types of vases and even the style of decoration may, and indeed in many areas do, vary between grave and settlement contexts (Shelton *pers. comm.*). There is still a great deal of work to be done in compiling catalogues of Mycenaean pottery from settlement sites in the

Mycenaean heartland, which is certainly needed if some of the problems of dating the Mycenaean pottery from Macedonia and Italy are to be resolved.

Excavators each have their own method of defining levels during excavation. In **Macedonia**, for example, Phase 7 (Assiros), Schicht 14b (Kastanas), Level 3 (Agios Mamas) all correspond, more or less, to the same period of time – LH IIIC early. However a more detailed look at the chronology of each site highlights a further problem. While ideally an excavator would assign a single level to a single period of time – i.e. all material from LH IIIC would conveniently be assigned to a single phase, the reality of excavation is such that interpretation comes later and one level might in fact cover the entire period from LH IIIC to Protogeometric. Such is the case at Kastanas where Schicht 12 covers the entire period from LH IIIC advanced, through LH IIIC late to the Early Protogeometric, a span of some 200 years (Jung 2002, 226-227). It remains unclear whether this results from mixed deposits or the excavation method – the removal of 10cm spits rather than natural levels.

Unfortunately this inconsistency has resulted in problems of placing local Mycenaean material accurately within the chronological framework of the Mycenaean heartland. The excavators have had to rely on stylistic criteria to date their material for lack of any better standard. Arguments continue, moreover, about 'culture lag', i.e. how far changes in style were accepted as soon as they were introduced in the Mycenaean heartland and how far new elements or fashions appeared some years later in peripheral areas (cf. Catling, R.W.V., 1998, 162-164). A later and well documented example of culture lag in pottery style is the adoption of pendant semicircles in Late Protogeometric Euboean pottery at Lefkandi approximately 100 years after their introduction to the Protogeometric repertoire of Athens (Desborough 1980, 287).

Identifying influence in these situations can be difficult and occasionally the influence may (unfortunately) result from two different periods. Prof. Stelios Andreou (*pers. comm.*) has observed at Toumba Thessalonikis that linear pottery of the 10th century BC responds to two different influences: firstly Mycenaean linear pottery, which was already present in the repertoire some years earlier and secondly southern

Protogeometric pottery. This may also be the case at sites such as Kastanas and Agios Mamas but the difficulties already mentioned above of associating the pottery with different levels within Schicht 12 and Level 1 has made it impossible to isolate this particular phenomenon.

The chronology of four major sites in Macedonia - Assiros, Kastanas, Agios Mamas and Toumba Thessalonikis, is set out in Table 3.1. It is the result of detailed discussions with Prof. Stelios Andreou, Dr Reinhard Jung and Dr K.A.Wardle in November 1999 and in some cases revises already published chronologies.

For **Italy and Sicily** there is little depth of stratigraphy at the sites excavated so far to enable sequences of local material to be constructed and the sub-periods are named after local pottery *facies* whose typology has been dated by reference to the presence of Aegean pottery at type sites or by the presence of metal objects which have chronologically well defined contexts elsewhere in the Mediterranean. In some case (such as Sardinia) dating depends on both pottery assemblages and stylistic developments in funerary and domestic architecture and are related to the wider Mediterranean chronology by the presence of Aegean pottery and artefacts.

The problems of chronology are no less complicated in **Anatolia,** where once again there is no definitive chronology available for the area. Mycenaean pottery has been studied in much depth at a number of sites, particularly at Troy (Blegen 1958; Mountjoy 1997b; 1997c; 2000a; 2000b). This has enabled a good understanding of the chronological relationship between the local pottery at Troy and Mycenaean wares. The results of this work are laid out in the Table below (3.2) which is largely based on a re-evaluation of the pottery from Troy originally published by Blegen in 1958 (Mountjoy 1999, 298). The different phases at Troy are the standard references used by excavators at other sites in the region with comparable local pottery. Beycesultan fulfils a similar role for many of the sites in southern Anatolia, but to avoid confusion where it has been necessary to give dates for local pottery, the relevant Troy periods are used.

Pending the establishment of a closer framework of scientifically derived dates, the basis of any chronologies, such as those for Macedonia (Table 3.1) and Anatolia (Table 3.2) set out below, as well as the overall comparison of date as in Table 3.3 remains speculative in many areas, awaiting fresh evidence for confirmation or reassessment.

The following sources have been useful in compiling Table 3.3: Aeolian Islands and Sicily – Holloway 1991, Malone *et al.* 1994, 170; Sardinia – Webster 1996, 14; Italian peninsula – Malone *et al.* 1994, 170; Mycenaean heartland – Wardle & Wardle, 1998, 6; Mycenaean pottery – Mountjoy 1986, 8; Mountjoy 1999. Articles in Balmuth and Tykot (Eds.) 1998 and Skeates and Whitehouse (Eds.) 1994 offer current theories on chronology in the Mediterranean region and good bibliography on the subject.

ASSIROS[1]		*TOUMBA*[2]		*PHASE*	*KASTANAS*[3]		*AGIOS MAMAS*[4]	
PHASE		LEVEL			SCHICHT		LEVEL	
4	EPG			EARLY PG	12	III C LATE, EARLY PG	1	IIIC LATE – PG?
5	III C LATE			LH IIIC LATE				
6	III C MIDDLE	4	III C MIDDLE	LH IIIC MIDDLE	13	III C ADVANCED	2	IIIC ADVANCED-LATE
					14A	III C DEVELOPED		
7	III C EARLY	5	III C EARLY	LH IIIC EARLY	14B	III C EARLY	3	IIIC EARLY-LATE
8	III B		III B	LH IIIB	15	III B	4	IIIB
9	III A2/B		III A2	LH IIIA2/B	16	III A2/B	5	IIIA?

TABLE 3.1 A COMPARATIVE CHRONOLOGY FOR MACEDONIA

[1] Based on Wardle 1997, 447, with additions by Wardle *pers. comm.*
[2] Andreou & Kotsakis, 1991a, 175-198; 1997, 376.
[3] This chronology is provided by Dr Reinhart Jung who has revised that already published and used by Hänsel (1979) and Podzüweit (1979a).
[4] According to Dr Reinhart Jung, unpublished PhD thesis, Berlin 1999.

TABLE 3.2 A COMPARATIVE CHRONOLOGY FOR ANATOLIA

		MYCENAEAN	TROY[5]	HITTITE
1500----------		LH I		
	1460	LH IIA	VId	
		LH IIB	VIe VIf VIf	
1400----------	1375	LH IIIA1	VIg	1390 TUDHALIYA I/II
		LH IIIA2	VIh DESTRUCTION	1370 ARNUWANDA I 1355 TUDHALIYA III 1344 SUPPILULIUMA I 1322 ARNUWANDA II 1321 MURSILIS II 1318 SACK OF MILLAWANDA
1300----------		LH IIIB1	VIIa	1295 MUWATALLI II 1271 URHI-TESHUB 1264 HATTUSILI III 1239 TUDHALIYA IV
	1230	LH IIIB2		
	1210	LH IIIB2/IIIC EARLY	?VIIb1	1209 ARNUWANDA III 1205 SUPPILULIUMA II
1200----------		LH IIIC EARLY	VIIb1	
		LH IIIC MIDDLE	VIIb2	
1100----------		LH IIIC LATE	?VIIb2	
		SUBMYCENAEAN	?	

[5] Correlation between Mycenaean pottery styles and Troy phases according to Mountjoy 1998, 46.

Italian periods		Aeolian Islands	Sicily	Sardinia	Italian peninsula	Myc Heart-land	Mycenaean pottery style etc	Macedonia (Assiros)	Anatolia (Troy)	Greek periods
MIDDLE BRONZE AGE	1800	CAPO GRAZIANO	CASTELLUCCIO	NURAGHIC II	PROTO APENNINE		MH			
	1700									
	1600					EARLY PALATIAL				LATE BRONZE AGE
	1550						LHI			
LATE BRONZE AGE	1500	MILAZZESE	THAPSOS		APENNINE		LHIIA		VI d	
	1450						LHIIB		VI e,f	
	1400						LHIIIA1		VI g	
	1350						LHIIIA2	NINE	VI h	
	1325									
	1300			NURAGHIC III	SUBAPENNINE		LHIIIB1		VIIa	
FINAL BA	1200	AUSONIAN I	PANTALICA I		PROTOVILLANOVAN		LHIIIB2	EIGHT		
	1150					LATE	LHIIIC EARLY	SEVEN	VIIb1	
	1100						LHIIIC MIDDLE	SIX	VIIb2	
	1050						LHIIIC LATE	FIVE		
IRON AGE	900	AUSONIAN II			VILLANOVAN		SUBMYC PROTOGEOM			IRON AGE

TABLE 3.3 A COMPARATIVE CHRONOLOGY FOR THE AREA OF STUDY

3.3 SARDINIA

The cultural and social development on the island of Sardinia during the second millennium BC follows a distinctly idiosyncratic path with the evolution of the complex structures known as Nuraghi which lie at the heart of all major and most minor settlements (cf. comprehensive surveys of the period in Webster 1996; Rowlands Jr 2002). These have no parallels in any neighbouring regions of the western Mediterranean. Three chronological divisions in this cultural sequence have been defined by developments of Nuraghi and changes in burial practice throughout the Bronze Age. The emergence of the *proto-nuraghe*, a single storey stone tower, late in the 3rd millennium BC marks the first period, Nuraghic I. The development of the *'true' nuraghe (tholos-nuraghe)*, a stone tower, up to three floors in height, marks the second period, Nuraghic II. The third, Nuraghic III, is marked by the development of the *complex nuraghe*, a series of towers linked together with battlements and walkways, with large villages of stone huts in the surrounding area.

3.3.1 Nuraghic I

In order to understand later developments it is necessary to mention in brief Nuraghic I/Proto-nuraghe, which began some time around 2300 BC and continued until c.1800 BC. It was a period of change and instability, which is reflected in the wide variety of burial traditions. It marked the emergence of the **Proto-nuraghe,** which constitute the single most numerous settlement type with over 180 sites already identified as belonging to this period. These settlements appear to be concentrated mainly in the middle upland regions of west central Sardinia. Only a handful have been excavated, such as *Brunku Madugui* (Demurtus and Demurtus 1991) and the study of them has focused on the architectural evolution as structural predecessors of the 'true' nuraghi which begin to appear in the Nuraghic II.

These early nuraghi, although less uniform and structurally simpler than the 'true' nuraghi, have several features in common with each other:

1. A low platform of dry-laid 'cyclopean' masonry with irregular plan.
2. Interior corridors, often branching from one or two entrances and one or more small, irregular interior chambers.
3. Flat upper floors usually accessible from an interior corridor or exterior stairs

Brunku Madugui is located on the high plateau of Gesturi in the Marmilla. Brunku, excavated in the early 60s by Lilliu, is associated with an adjacent village of circular huts, which seems to be a later expansion of the site though some of the structures are contemporary with the foundation of the nuraghe. The nuraghe itself comprises a platform built of dry-laid polygonal basalt boulders laid in a cyclopean manner. The entrance, through an architraved door, leads up from the ground level to the second floor to the two principal habitation rooms. Lilliu (1988, 179) regards this as a single-family residence. One room, containing a hearth has been identified as a kitchen and others have provided evidence of an extensive lithic industry (Lilliu 1988, 180). The evidence from this site and other similar settlements has suggested that they were single-family farmsteads.

The distinctive Bonnanaro A **pottery** has traditionally been used to define this period (Fig 3.6b). It is distinguished by its repertory of heavy, crude and ill-fired pottery. The vessels are rarely decorated but many have the characteristic 'elbow' handles and heavy tripod bases (Fig 3.6b, b&c). However to date, in all but a few exceptions, discoveries of this pottery have been confined solely to funerary contexts and as such these have often been referred to as the 'culture of the dead' (Lilliu 1988, 277). This pottery developed into the Bonnanaro B/Sub-Bonnanaro or Sa Turricula pottery of the following period.

Burials during this period seem to have been confined to rock built tombs (*tombe di gigante*), hypogea and temple wells (*tempo a pozzo*) with some evidence of the use of caves for burials (*tafoni*). A fine example of burial practices comes from the Sant'Iroxi Decimoputzu hypogeum, which takes the classic *domus de janas* form with a long dromos and two burial chambers of the main chamber (Ugas 1990, 129). The remains of 198 individuals of all ages and sexes were recovered along with their associated

offerings. Ugas (1990, 130-131) suggests that this hypogeum represents the high status burials of an elite warrior class though Webster (1996, 77) suggests that it is no more than a 'collective mode of interring' and represents the accumulated remains of several families who are differentiated by little more than age and sex. Certainly the evidence from other burials of this period with their modest plain Bonnanaro vessels suggest that there is little gender related status distinction (Webster 1996, 75).

The evidence for metal working at this period is confined to finds of bronze weapons, tools and ornaments in burials of this date, such as the 13 swords and 5 knives from the hypogeum at Sant'Iroxi Decimoputzu (Ugas 1990, 110). The far greater number of burials without metal objects indicates that these weapons were prestige items for status display rather than mass-produced objects. The most common bronzes are the small awls and pins (Ugas 1990, 103). Amongst the bronzes recovered from this period so far only a few can be typologically compared to contemporary Italian bronze working, and it is thought that for the most part these are local variations. The lack of evidence, however, for the mining of the native copper ores or even metal workshops of this date (Lo Schiavo 1986a, 242) suggests that acquisition of fine metal items was largely dependent on external trade relations and that local manufacture was in its infancy and limited to a few individuals.

3.3.2 Nuragic II - 1800-1300BC.

The beginning of Nuraghic II, unlike that of the previous period, is not marked by great changes in the pottery assemblage. The period can be subdivided into MBA1 and MBA2 (Webster 1996, 87). The former is characterized by the continuation of the preceding Bonnanaro A styles and is a short-lived period. After this, Bonnanaro A on the other hand seems to have become obsolete. The emergence of Bonnanaro B/Sub-Bonnanaro/Sa Turricula pottery begins in MBA2, around the beginning of the 16th century BC. The forms change little, but there is a near absence of the tripods or elbow handles of Bonnanaro A, though the low pans (*tegami*) remain common forms (Fig 3.6b,

h). The decoration of this type of pottery earned it the name 'combed', 'comb-punctate' or 'comb-stamped' (Fig 3.6b, d&e; Fadda 1984b; Trump 1990). Webster notes its similarity with the contemporary Torrean pottery in Corsica and that of the Milazzese culture in the Aeolian Islands (Webster 1996, 87), but from the few pottery analyses conducted it is certainly a locally-made derivative. Bonnanaro B pottery divides into two diagnostic styles. The first, known as the zoned punctate or *metopale* consists of vessels decorated with triangular or rectangular zones filled with combed or impressed designs (Ferrarese Ceruti *et al.* 1987; Lilliu 1988) and is found particularly on milk boilers. The second style, combed or *pettine* ware is far more common, with decoration taking the form of impressions made with a comb-like instrument in linear and geometric designs. The low dishes and pans are commonly decorated on their interiors with this method. Pottery typical of Bonnanaro B, with few stylistic differences, continues until well after 1300 BC at sites such as Duos Nuraghes, the Giant's tomb at Orrida and the open settlement at Sa Turricula. A selection of typical nuraghic pottery may be found in Fig 3.6. The chronology for this period is therefore dependent on the appearance and development of the 'true' nuraghe. The C^{14} dates at Pizzinnu-Posada in around 1743-1517 cal BC, Noeddos-Mara at 1746-1517 cal BC and Su Nuraxi-Barumini at 2270-1262 cal BC (Webster 1996, 87) all have too wide a margin of error to contribute much to the chronology of the different phases.

In considering the general patterns in settlement during this period three main features stand out. Firstly there is a reduction in the number of open and undefended sites and cave dwellings, secondly there is continued occupation of previously established Proto-Nuragic settlements and finally the introduction of a new type of habitation - the tholos-nuraghe farmstead (true-nuraghe).

It is significant that of the limited number of **open settlements** which could be dated to Nuraghic I only a very few survived into Nuraghic II. There are some possible exceptions such as Piscina 'e S'Orku-San Sperante, Piscina 'e S'Aqua-Monastir and Monte Olladiri-Monastir (Fadda 1984a; Lilliu 1988, 321). There appears to have been a different pattern of settlement in the Decimoputzu region in the south of Campidano.

Here there seems to have been a brief abandonment dating to early Nuraghic II with resettlement late in Nuraghic II in newly built tholos-nuraghe. Eleven have been recovered so far in this area, all located on higher and perhaps more defensible ground (Ugas 1990, 23,29). This pattern can also be seen in the upper end of the Campidano where several, small open settlements were established in conjunction with around 80 nuraghi and at least one Giant's tomb.

This transition from undefended settlements to more defensible locations can be seen most clearly in the Bonu Ighinu basin. Here the long-lived settlements of Santa Vittoria and Monte Noe were abandoned and the seasonal use of the Filestru cave appears to have been suspended. In their place a series of proto-nuraghi and 'nuraghe farmsteads' sprang up associated with four or five Giant's tombs (Trump 1990, 50-51).

By far the most common type of settlement for this period was the **'true' nuraghe** (tholos-nuraghe), of monumental size (Lazrus 1999, 129; Fig 3.2a), of which, so far, 7000 have been identified (Trump 1992, 199). Most typically the nuraghe consisted of a free-standing trunco-conical tower about 12m in diameter with inward sloping exterior walls, constructed in dry-laid 'cyclopean' masonry, up to and sometimes exceeding 15m in height, topped with a flat roof. The walls, themselves some 3-6m thick, enclosed a single ground floor vaulted chamber, circular in plan. Entrance to this room was via a corbelled corridor through a heavily linteled doorway. The central room was rarely more than 5m in diameter and frequently had one or more wall niches. Many had a second story with a similarly appointed chamber, though these were somewhat smaller because of the inward sloping walls. Examples of this type of nuraghe are Tower B at Duos Nuraghes in Borore (Teglund and Webster 1993) dating to 3636-1181 cal BC by C^{14} (Tykot 1992) and Trobas in Lunamatrona (Lilliu 1982, 24, 1988, 227, 319-21). The similarity of these structures with constructions elsewhere, such as the Mycenaean tholoi, Apulian trulli and the Scottish brochs, has fuelled a fierce debate regarding the origins and developments of such structures (5.1.6) but ultimately they seem to be of native origin.

The function of the nuraghi is a matter of some debate but it seems that they functioned primarily as fortified nuclear farmsteads which incorporated the roles of watch tower, livestock shelter and repository for valuable commodities. Trump (1991, 166-167) and Gallin (1991, 69) have suggested that they also served as territorial markers and status symbols though there is little to suggest that they belonged to a land-controlling elite as there is no evidence at this time for settlement hierarchy. The society of the time is thought to be based on familial or tribal groups, which forged fragile alliances based on mutual distrust or even open hostility described by Webster (1996, 99) as regional level tribal confederations.

While the three types of **burial** already discussed for the Nuraghic I continued in use during this period it seems that a distinct preference for the megalithic tomb developed as is shown by their proliferation in most regions (Moravetti 1985, 160-161). Several hypogea containing Nuraghic II funerary deposits have also been identified, largely in the northwest of the island in the regions of La Nurra and Anglona, with some in the north, Campidano, Planargia, Gallura and the Sarcidano. Natural caves continued in use in some areas, largely in the southwest regions of Inglesiente-Sulcitano, where around 14 have been identified (Ferrarese Ceruti 1981a). Significantly these are found in the same regions that also have the lowest number of megalithic tombs (Moravetti 1985, 160). There is little evidence for differential status in burial (Moravetti 1985; Bonanzi 1992, 214).

Megalithic tombs, as already mentioned, increased in great numbers during this period. The typical Nuraghic II megalithic tomb was little different from the classic Giants' Tomb of Nuraghic I, comprising a narrow burial chamber up to 18m in length and approximately 1.5m in width. The semicircular forecourt marked out by curved stone walls, which flanked the entrance, remains a dominant feature. Only a few contained preserved skeletal remains, among which is the tomb at Orrida-Sennori, dated by C^{14} to 1521-1315 cal BC (Tykot 1994, Table 1). It appears from the somewhat limited evidence that there is a continuation during this period of collective secondary burial with modest offerings similar to the earlier period. The investment of labour in the

construction of such a large number of megalithic burial chambers suggests the emergence of powerful individuals able to command the assistance of a substantial workforce.

Evidence for inter-regional trade is provided by obsidian, which continues to be found at almost every Nuraghic II site (Lilliu 1988, 317-341) although there is a general decline in some areas further from the Monte Arci source (Trump 1991, 20). The widely scattered spatial distribution of the few Nuraghic II sites with finds of presumably native copper and bronze has proved inconclusive for reconstructing any form of trade pattern and it seems that local metalworking was extremely limited. However, the absence of definite Nuraghic II sites in the area of Decimoputzu in the Campidano with rich metal finds is significant as it shows a marked contrast with the relative wealth of finds recovered from the Nuraghic I hypogeum of Sant'Iroxi (Ugas 1990, 134).

Curiously extra insular trade also seems to have declined during this period with infrequent finds of foreign goods. Metal imports are few and include a possibly Sicilian dagger from Su Mulino-Villanovofranca and several 'Cypriot'-style daggers from Ottana (Lilliu 1988). Finds of Mycenaean origin are also limited (Table 4.3).

3.3.3 Nuraghic III (1300-900BC)

This period has traditionally been regarded as the highpoint of the Nuraghic civilisation (Lilliu 1988, 355-416). The greatest developments occurred within settlement organisation. Many of the nuraghe were enlarged with the addition of battlements to the central towers and in many cases the development of villages with up to 100 circular stone huts occurred in the surrounding area. The ritual organisation became more complicated and new burial practices have been seen as mirroring the social organisation and differentiation. The use of the ox-drawn plough becomes common, as

is certainly well documented from the Ittireddu region (Galli 1991). At the same time there was also an increase in metallurgical activity with a wide variety of tools, weapons and personal ornaments being produced partly from native ores and partly from imported material. Trade too seemed to increase during this period with the local communities becoming more active in the Mediterranean sphere.

The pottery repertoire develops into broad regional style zones. North of the Campidano lowlands, the comb-impressed pottery tradition continues (Webster 1988, 468-469) with the occasional variation. To the south an undecorated wheel-made grey ware (*ceramica grigia*) or slate-grey ware (*ceramica grigia ardesia*) developed (Fig 5.9; Ferrarese Ceruti 1981b, 605-612). This pottery was first recognised in Antigori-Sarrok and occurs in direct association with imported and locally-made Mycenaean pottery of LH IIIB and LH IIIC date. It seems that manufacture of this ware did not continue after the end of the Mycenaean period which may suggest some functional or technological link between the two classes. A wide variety of open and closed shapes were made locally (Jones & Day 1987, 268). Towards the end of this period in the Late Bronze Age (LBA2 or final) new decorative techniques begin to emerge in both the north and the south, which 'anticipated' the geometric pottery of the subsequent Iron Age (Lo Schiavo 1986b, 811-812). Particularly notable are the 'T'-shaped motifs which in some cases closely resembles ram's horns. Grain storage becomes increasingly important during this period and this is reflected in the large storage vessels of various types. The low pans of the preceding period remain popular but a new type of two-part milk boiler develops with the brazier separate from the milk pan.

The vast majority of the settlements dating from this period are **small homesteads** consisting of a central corridor or tholos nuraghe of earlier date and a small number of newly founded huts (Class I settlements: Fig 3.2b). Lilliu estimates that these comprise approximately 70% (estimated at around 5000) of all settlements identified for this period, (1988, 357) including Duos Nuraghes - Borore (Michels & Webster 1987), Toscono - Borore (Teglund & Webster 1993), Sala 'e Serra - Bonu Inghinu (Trump 1990).

The second type of settlement identified for this period is the **complex nuraghe** or multi-towered nuraghe (Class II settlements) (Fig 3.3). These are not generally new settlements but older habitations that were expanded by the addition of one to four subsidiary towers to the original edifice. These were then usually joined together by encasing walls and communicating galleries to form heavy bastions. This was then frequently enclosed within a courtyard and supplied with a well. According to Lilliu's estimate these formed approximately 28% of settlements during this period (1988, 357). Recent excavations at these settlements, such as San Pietro-Torpe (Lo Schiavo 1976, Nastasi-Torralba (Basoli 1984, 233-235), suggests that these nuraghe continued to function as domestic residential structures but represent the collection of considerable wealth and power.

The best documentation of this type of settlement has resulted from ongoing excavations at the site of Funtana-Ittireddu. This site is situated within a dense collection of nuraghi sites, numbering some 118, occupying a mineral rich plateau (Galli 1991, 34-37). The nuraghe comprises a central two-storey tower dating to Nuraghic II to which two lateral towers were added. From the entrance corridor came a large hoard of copper and bronze including 27 fragments of oxhide ingots (Muhly & Stech 1990, 177). Stone moulds, crucible fragments, jewellery fragments and fragments of bronze figurines in the upper destruction levels provide evidence of further metallurgical activities.

The final category of nuraghic settlement for this period, the **protocastles** (Class III settlements) is a further modification of the complex nuraghe (Fig 3.4). Towards the end of this period (between the end of the 15^{th} and beginning of the 13^{th} century BC – Santoni & Sebis 1984, 97-114) a small minority of these were further enhanced by the construction of heavy, multi-towered *antimurals* around the bastions. Around these fortifications grew large villages of stone huts. These are the protocastles of the mature phase of nuraghic development and include examples such as Su Nuraxi-Barumini (Lilliu & Zucca 1988), Sa Domu 'e S'Orku-Domusnovus (Usai 1984, 60-62), Nuraghe Antigori (Ferrarese Ceruti 1986), Arrubiu-Orroli (Lo Schiavo 1992; Contu 1951).

In most cases these protocastles may be considered as centres of tribal units which have been traditionally labelled as cantons (Rowland Jr. 2001, 39 n.54). Webster in his discussion of the protocastles and other Nuraghic settlements (1996, 109) estimates that there were around 60 major sites, either protocastles or the larger complex nuraghi, in different parts of the island. Since Mycenaean finds are almost all from this type of settlement the % representation of features in Sardinia (Table 5.4) is based on this number of sites.

A growing number of open settlements can now be dated to this period and are mostly concentrated in two inland zones – the central highlands of the Barbagia Nuorese and Baronie (Fadda 1985, 111-131). Few have been well excavated but the data that exists shows them to be similar in layout to the nuraghe villages, comprising around 200 circular stone huts usually grouped into compounds. Survey work has highlighted the presence of mud-brick nuraghic villages without the central nuraghic complex, particularly in the Gulf of Cagliari (Sebis 1994, 90-91; Ugas 1993, 37, 39, 52, 128) and the Sinis areas (Stiglitz 1986, 97; Sebis 1998, 137) dating from the late 13th century.

At least 30 Giants' Tombs constructed during this period have now been identified. These are similar in plan and size to earlier tombs, incorporating most of the traditional features but are distinguishable by their more tightly integrated masonry and the presence of a low dentillated lintel or frieze above the entrance in place of the more usual stele (Webster 1996, 143). The grave goods are consistently richer (Ugas 1990, 124) suggesting the presence of a more stratified and wealthier society.

The evidence for **metallurgical activity** by the end of the 2nd millennium is widespread and indicates a substantial change from the preceding periods. Several hundred fragments of plano-convex and bun ingots as well as over 50 oxhide ingots have been found at various locations (Webster 1996, 136) indicating that they could be products of both primary and secondary smelting (Muhly & Stech 1990, 177-178). The clearest

evidence for metal working lies in the discovery of stone moulds, crucibles, slags and ashes from both secondary foundries and casting sites as well as numerous metal-working tools. Around 30 moulds reflecting known central Mediterranean tool types (5.2.7) were made of steatite or chlorite for which sources are known from the Barbagia. In addition several anthropomorphic and zoomorphic bronze figurines have been found in Nuraghic III contexts (Ridgway 1988/89, 134). This floruit in metal working that occurs from the beginning of the Nuraghic III period and can be seen in the sharp increase in the manufacturing of bronzes locally at several metalworking centres, is a further indication of the development of the socio-political organisation of a hierarchical society.

Extra insular trade during this period is attested not only by the finds of imported metal tools and amber beads but by the significant number of find spots of imported and locally copied Aegean pottery (Table 4.1).

3.3.4 Overview of developments during the period from 1800-1100 BC

It must presumed that the development of the Nuraghi was prompted by rivalries between the leaders of small local groups who erected these fortified towers both for defence and as a demonstration of their status. In Sardinia, this is an unusually extreme response to peer rivalry. This desire to demonstrate status was not yet (Nuraghic I) significantly reflected in burial practices and there is no evidence of any high level of economic development. The shift from open settlements to a smaller number of increasingly complex nuraghi (Nuraghic II) may indicate that a small number of local leaders had become more important than the remainder and that processes of urbanisation followed from this. Economic and trading activity, however, seems to have suffered as resources were diverted to the extravagant construction of highly decorated megalithic tombs as well as nuraghi. Metal working is still minimal despite the local mineral resources and there is no sign of provision for agricultural storage on a large scale. By the beginning of the 13th century (Nuraghic III) the process of centralisation

had led to a number of significant major centres, often protocastles, controlling large districts which conform to the concept of a central place. Economic activity had accelerated significantly, particularly in the fields of trade and metallurgy. Increased numbers of settlements suggest a rapid population increase, which may in turn relate to the introduction of more productive plough agriculture. Burial monuments continue the tradition of resource-intensive display, but there is little indication of the production of table wares and drinking sets either in the local pottery or in Mycenaean -style (5.1.8). Overall the material record provides an impression of the steady development of a large number of hierarchically arranged political units varying in size and jurisdiction, which will each have had a distinct history and orientation (Webster 1991; Bonanzi 1992). It would not be surprising if the leaders of such political units sought to acquire 'exotic' Aegean items as prestige goods rather than as part of any balanced economic exchange system.

3.4 SICILY AND THE AEOLIAN ISLANDS

Though the island of Sicily is large enough to support distinctive local cultural developments throughout its history, its proximity to the mainland of Italy and the existence of important mineral rich 'stepping' stones (the Aeolian Islands) off its north coast have ensured that it was rarely isolated but rather receptive to trade and ideas from all directions (cf. Leighton 1999 for a comprehensive survey).

3.4.1 The Castelluccian and Capo Graziano Cultures (The Early Bronze Age 2500-c.1500 BC)

Sicily

The Castelluccian culture represents the first phase of the Sicilian Bronze Age. The earliest C^{14} dates, from the site of La Muculufa place its beginning around 2500-2200 cal BC (Holloway 1991, 20, see also Leighton 1999, Table 4). It has been suggested that this period should be subdivided as Leighton (1999, 113) into BA1 (Bronze Age or Bronzo Antico) from 2500-2000 cal. BC and BA2 from 2000-c.1400 cal. BC. Such refinements may ultimately assist in the identification of chronological as well as regional patterns. This culture, while extending over the whole of Sicily was never more than a loose union of regional groups.

Settlement patterns during this period suggest that there were numerous small unranked communities, often situated quite close together, predominantly on promontories, on hills overlooking coastal plains or along river valleys. Their cemeteries were often carved into the rock face below the settlement as at Noto Antica (Tusa 1999, 160). The sites of Manfria (Orlandini 1962) and La Muculufa (McConnell 1995) indicate that that these communities rarely consisted of more than 12 dwellings. On the whole the architecture of their settlements was simple and functional, little more than round huts, 4- 6m in diameter, with thatched roofing as detected at Branco Grande near Camarina

(Tusa 1983, 336). La Muculufa provides evidence of more sophisticated dwellings where the roof was supported on interior posts and a bench curved round the interior wall (McConnell 1992, 39).

The subsistence economy was based on cereal agriculture (wheat, barley and oats), legumes (Vicia faba) according to archaeobotanical studies at La Muculufa, while animal husbandry varied considerably from one district to another. At La Muculufa sheep/goats were by far the best represented domestic animal, while at Valsavoia cattle were the most numerous (Leighton 1999, fig.41). Storage jars (pithoi) were presumably in use, if not common, since they are occasionally used for jar burials.

Evidence of stout fortification walls, approximately 3m in width, with towers at intervals, has been unearthed at Melilli, north of Syracuse, where some 70m of walling has been uncovered (Tusa 1983, 299). It is not clear whether these fortifications predate Mycenaean contact or not. Similar walls with towers are known from the Aegean at Lerna in the Peloponnese and Chalandriani on Syros though these date to the later third millennium (Renfrew 1972, 177). At Aegina in Stadt VI-VIII there are fortifications dating to around the same period as those at Melilli (2050-1800 BC) but they are of a rather more elaborate nature (Walters and Felten 1981, 40-70).

Collective rock cut **tombs** with up to thirty inhumations typify the Castelluccian phase (Orsi 1889, 1891, 1893, 1897) although a total of over a hundred bodies in some tombs is not unknown (Monte Sallia has a burial which contained a hundred and fifty individuals – Leighton 1999, 130). However, tombs containing between 1 and 4 inhumations are most common. Presumably the traditions of each district dictated whether these tombs were used for family or community groups. A few examples of cist graves dating to this period have been excavated at Monte Racello (Orsi 1898, 202), but this tradition is not widely continued from the preceding period. The tombs, roughly elliptical chambers, sometimes preceded by a long entrance passage, are usually situated in upland areas, with prominent and visible entrances. While they took advantage where possible of natural caves and rock crevices for burial as well, as at Monte Racello and Monte Sallia, all but a few of these

had been further modified with rock-cutting. Some rock cut tombs, like that of Santa Febronica have ornately carved facades of 'columns'. A particularly fine example is at Cava Lazzero where the facade consists of eight columns carved into the rock each decorated with chevrons and circles (Leighton 1999, 123). Other tombs, such as those at Castelluccio had slabs sealing the entrances with carvings representing sexual intercourse, which are thought to be aprotropaic in function (Tusa 1991a, 1991b). The widespread elaboration of tomb facades and interiors with different kinds of decoration does not appear to reflect the wealth of individuals or sub groups within the communities since the grave goods were unostentatious. These consisted of pottery, small bronze items, such as spirals, blades and beads, bossed bone plaques, flint tools, stone and shells and rarely, amber beads and pendants.

Evidence for metal working is not substantial during this period though grave goods from tombs at Castelluccio among others suggest that the popular short daggers (found at Monte Racello and S. Febronia for example) and axes are locally made, while slotted spear heads find parallels with Early – Middle Bronze Age types from the Aegean. A fragment of iron from a tomb at Castelluccio seems to be the earliest evidence for iron in the western Mediterranean and was most probably a traded item (Leighton 1999, 142).

Local **cult** practices are still not fully understood but there seems to be some continuity in the use of the terracotta horns from the previous periods and anthropomorphic figurines. An enigmatic group of 22 figurines was found at Monte San Guiliano, consisting of six females, two males and fourteen children (Orlandini 1968).

The distinctive Castelluccian **pottery**, painted black on red, and occasionally with a yellow, brushed slip, is often also incised with patterns ranging from diamonds, triangles and chequerboards to zig zags, herringbones and wavy lines varying according to taste and district (Fig 3.7). This elaborate pottery, which includes mugs and pedestal bowls, seems to have been reserved for the living and, to judge by the effort expended on it, for display. Simpler versions were placed in graves. The decoration exhibits some similarities with Middle Helladic Matt-Painted wares and some pieces were formerly claimed as imports of that ware (e.g. Fig 3.7a,b&c), but the evidence is still insufficient

to demonstrate even imitation. The basic domestic assemblage as identified at La Muculufa (McConnell 1992) includes chalices with a deep bowl on a pedestal and pitchers (Maniscalco 1999, 187). A similar repertoire of pottery is present in tombs. The abrasions on the interior of one of these chalice vases suggests that a dipper was used for the extraction of wine (Holloway & Lukesh 1989) and it may be reasonably assumed that this particular group of vessels was associated in some way with drinking and feasting – the deeper the bowl on the pedestal the more likely to contain liquid. The shallow basin on a stand that was introduced at the end of the Castelluccian period (Maniscalco 1999, 192) is more appropriate for solid foods and may have developed in response to introduction of the use of amphorae as containers for liquids.

Aeolian Islands

In a slightly different cultural environment the third millennium saw the rise of the Capo Graziano culture in this area (Tusa 1983, 360), with strong links to the Proto-Apennine culture in southern Italy and the Rodi-Tindari-Vallunga groups on the north coast of Sicily (Bernabò Brea 1989; Damiani *et al.* 1984; Tusa 1994).

The earliest **settlements** were situated along the coastline, such as Contrada Diana, located at the foot of the Lipari acropolis. Later, perhaps as a result of piracy, settlements were shifted inland to safer heights (Vosa 1989, 548). The rough environments of these islands however, dictated the style of settlements, requiring adaptation to suit the conditions. Nearly thirty roughly oval huts with sunken floors, outdoor hearths and evidence that the superstructures were perishable have been uncovered at La Montagnola del Capo Graziano on Filicudi (Bernabó Brea & Cavalier 1991a; Holloway 1991, 28; Leighton 1999, 133). The burials associated with this settlement were located a short distance away in natural crevices in the rock face. All that remained to indicate the presence of inhumations in this area were small collections of cups over which stones had been placed. All traces of bone had disappeared doubtless because of the acidic nature of the soil.

Capo Graziano **pottery** is largely handmade, coarse and monochrome grey with incised decoration usually consisting of dots, rosettes or wavy lines. Cups with ribbon handles are a typical feature of this culture and have also been found on the north coast of Sicily.

3.4.2 The Thapsos and Milazzese Cultures (The Middle Bronze Age - 1500-1200BC)

Sicily

With the rise of the Thapsos culture over the majority of Sicily (except on the Milazzese peninsula on the north coast), this period sees significant changes in social and economic organisation, particularly in the hierarchy of settlements in a protourban setting.

The number of **settlements**, at least in eastern Sicily, during this period is significantly less than in the preceding Castelluccian phase. This may be explained by the increase in the size of individual settlements and also the emergence of a more hierarchical society (Tusa 1999, 175). Leighton (1999, fig. 97) lists some 46 significant Sicilian sites for the later BA and Iron Age excluding hoards. With the addition of Mycenaean findspots, not included by him, this gives a figure of 50 as the basis for the presence analysis in 5.2.

The nature of many settlements changes very little with hut building continuing for the most part in the same traditions, but on a slightly grander scale. There is some evidence for settlement planning with huts arranged in loosely rectangular plots divided by narrow pebbled streets some 1-1.3m wide (Vosa 1984, 666-668). At the 'urban' site of Thapsos, which has 'residential' areas (Leighton 1999, 152) linked by a rough grid of roads, there are additional rectangular buildings arranged in a U-shape around a central courtyard (Complex B) thought to be Aegean in influence as a result of their substantial stone foundations and rectangular ground plan (Marazzi & Tusa 1976a, 60). Smaller sites such as Madre Chiesa, which consists of 6 huts and a large central structure might be

considered 'rural' (Leighton 1999, 154). The introduction of new techniques in architecture may be noted at a number of settlements at this time (5.2.6).

The subsistence economy has changed little in character since the Early Bronze Age, but the widespread use of large storage jars suggests substantial surpluses of cereal crops[2].

The **tomb architecture**, which is well represented in this period, continues the tradition of rock cut tombs. The interiors often reflect the interiors of houses, sometimes in minute detail as at Molinello di Agusta where carving imitates the thatched roof. At Thapsos there is also evidence of dromoi, sloping ramps cut in the rock leading to the chamber itself (5.2.3). Outside the entrance to some of the tombs, faunal and plant remains have suggested that mourners engaged in ceremonial feasting for the deceased. The best examples of so-called 'tholos' tombs, circular corbel-vaulted tombs, are at Monte-Campanelle, Milena (McConnell 1992, 40). The graves were richly furnished with grave goods and the number of inhumations varied between 1 and 68. The grave goods tend to be a mix of imported and indigenous items. The elaboration of the tombs, the rich grave goods and the presence of imports contrast markedly with the preceding period and indicate a considerable increase in prosperity and the desire to display it. The earliest graves in the enormous cemetery at Pantalica where well over a thousand rock cut tombs from all periods have been excavated are furnished vessels belonging to the Thapsos culture. This site shows not only the wide variety of style of tombs, see for example the 'oven'-shaped chambers, but shows that social stratification had developed while maintaining the deep-rooted traditions of local burial rites. Sites such as Cozzo Pantano, Plemmyrion, Molinello and Matrensa support this and highlight further the use of a great diversity of grave goods from different regions of the Mediterranean. Evidence also exists for the practice of single inhumations in jar burials at Thapsos, Milazzo and Messina. Leighton (1999, 169-170) suggests that these may represent a different social group. Burial rites in the local cultures of Sicily are now inextricably linked with the desire to display and differentiate.

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[2] The use of storage jars at Milazzo, Messina and Thapsos and other sites for burials (Albanese Procelli 1996) indicates that these are readily available but curiously they are rarely reported in settlement contexts, perhaps showing that they were too common for comment?

The distinctive Thapsos **pottery** is handmade, monochrome grey to buff with incised decoration limited largely to simple designs with the occasional inclusion of fish, birds or animals. Two distinguishing features, both quite common, are worthy of comment here – the introduction of gigantic pedestal vases (in some cases up to 1.5m in height) with exaggerated, often ornately decorated handles and the application of plastic ribbing to the exterior of vessels (Fig 3.8, a-d). These striking vessels must have served as a focal point for offerings in graves (as at Monte Balchino, Amoroso 1983) or display in other social contexts (see Maniscalco 1999, 188). They surely represent ostentatious social traditions of drinking and feasting.

Aeolian Islands

The Milazzese culture of the Aeolian Islands and the north coast of Sicily shares many features with the Thapsos culture, such as the huge pedestal bowls and ribbed decoration (Fig 3.9), suggesting strong links between the two (Bernabò Brea 1957, 120), but its nature owes more to the Apennine phase in southern Italy. With limited natural resources and a harsh barren environment it is not surprising that the populations of these island turned to trade to survive and they may therefore have been more receptive in these areas to innovations.

Their **settlement** architecture is irregularly oval like its predecessors (Fig 3.9) but there is evidence of differentiation in the settlement planning. At Punta Milazzese, for example, the huts of this period consist of units of 2-3 rooms, many with an annex (Bernabò Brea & Cavalier 1968). The quantities of kitchen and storage vessels suggest domestic use while a single complex set apart from the rest has been assigned a 'social' use on the basis of the presence of significant quantities of local and Mycenaean pottery. A similar situation may also be seen at the acropolis site of Lipari. At Faraglioni this change in settlement layout can be seen even more clearly. The preceding 'apse'-ended structures are replaced by quadrangular buildings, which are supplied with open courtyard annexes and linked by passages (Mannino 1982, Holloway & Lukesh 1995, 1997). Tusa (1999, 179) suggests that this new innovation in grouping rooms into distinct complexes is a 'proto-planned' layout that shows evidence of overall planning for the settlement.

There are no **tombs** of this period on the Aeolian islands but it is likely that their burial customs matched those to be seen in the San Papino cemetery on the Milazzo peninsula across from Lipari on the Sicilian mainland. These take the form of single inhumations in large storage vessels, a rite which was introduced in the Capo Graziano period.

There is evidence on Filicudi, Lipari and Salina of direct continuity in **pottery** manufacture from Capo Graziano to Milazzese. Decoration of finely incised chevrons appears, particularly on jugs and containers. The system of pottery marks, established in the Capo Graziano period, continues in a more developed form, with apparently stronger links with the Aegean. A total of 69 different marks have now been identified with over 30% being repeated 2-3 times (Marazzi 1997).

The end of this phase seems to have been an unsettled period in which coastal settlements are abandoned for the interior and Pantalica may have been established as a refuge settlement in this context.

3.4.3 The Pantalica I and Ausonian Cultures (The Late Bronze Age 1200-900BC)

Sicily

The Pantalica culture is divided into three phases based on the contents of some one thousand tombs by Bernabo Brea. Only the first phase, Pantalica North (I), is relevant to this study as the second phase 'Pantalica South' does not begin until the 9/8th century BC.

By the 12th century the situation appears more stable. There are signs of expanding contact and increased circulation of goods. There is an accumulation of wealth as the finds of metal hoards attest (Tusa 1983, 391). The Castelluccio hoard (Giardino 1995) illustrates the quantity and wide range of types. Other major centres include Cassabile and Dessueri, both sited inland. Thapsos, it appears remained as the main port for this area and many features of the Thapsos culture can still be detected.

The 'tholos' type tombs of the previous period have not been identified in this period (La Rosa 1993, 26). Ostentatious mortuary practices, however, continue: in addition to the tradition of funeral banquets for the deceased (as evidence from tombs of the Thapsos culture suggests), there is a development in grave goods, which indicates a distinction between the sexes for the first time. The status of a warrior is shown by the number of weapons and possessions buried with him, while female graves are equipped with jewellery (Maniscalco 1985, 6). The practice of cremation first becomes widespread at this period.

The tombs are notable for the quantities of **metal** found in them. Bronze bow fibulae and simple arch fibulae are both distinguishing marks of this period along with curved blade daggers and swords with cast handle tangs, which are features familiar from the Mediterranean metal *koine*.

The wheel-made **pottery** from Pantalica North, so called after tombs in the north of the acropolis, has a rich red surface. The shapes are familiar from the preceding Thapsos period and include pedestal vases, though not often of such large proportions (Fig 3.10a). The typical assemblage from tombs consists of a deep globular vase on a high pedestal, a pitcher, an amphora and a patera, sometimes in miniature form. This can be seen clearly at the cemetery sites of Pantalica, Caltagirone and Dessueri (Orsi 1904; 1899a; 1913; Maniscalco 1999, 189).

The Aeolian Islands

A catastrophe appears to have overtaken the sites of the Milazzese cultures, which were destroyed by fire during the 13th century BC and Lipari alone was resettled. The material culture of this settlement is closely paralleled on the Italian mainland and Bernabò Brea believed that it represented the arrival of a new people whom he named Ausonian (in accordance with a legend related by Diodorus Siculus V, 7, who claimed that initially the Aeolian islands were uninhabited but that later they were settled by Liperos son of Auson the king of the Ausonians, a people of central/south Italy).

Traces of **huts** have been found at Lipari, though severely disturbed by later deposition. It has been possible to establish that these were sunk into the ground and in all likelihood constructed in wood in the same manner as a type known from the Early Iron Age of central Italy, from 900 BC onwards (Bernabò Brea 1957, 143).

A necropolis of around fifty **tombs** of this period was found at the foot of the Lipari acropolis. All were cremations with the ashes collected in jars laid on their sides and sealed with a stone slab. Some, dating to the earlier years of Ausonian I, were particularly wealthy. Clearly this was a time of greater prosperity and stability.

Their **pottery** has strong links with that from the Apulian settlements of Scoglio del Tonno, Porto Perone and Coppa Nevigata. Two phases can be distinguished during the long-lived Ausonian Culture. Ausonian I, identified on the basis of a shallow layer at Lipari (Bernabò Brea 1957, 140), was clearly short-lived. Its wheel-made black pottery is characterised by carinated bowls with a large variety of zoomorphic, cylindrical and axe-shaped handles. A stratum of greater depth and richness known as Ausonian II followed it. Continuity from the previous period can be seen in the continued use of the potter's wheel, in handle forms, though they are considerably less varied and usually of an ox head. This period has two classes of painted pottery (Fig 3.10b-e), the first is decorated with brown/reddish geometric motifs on yellow ground. This style has also been recognised in the Apulia region of mainland Italy. The second ware is known as "plumed ware". As yet no traces of this culture has been found on any of the other Aeolian Islands, but it has been identified on the north coast of Sicily.

3.4.4. Overview of the developments during the period from 1800-1100 BC

During the long Early Bronze Age period there is little sign of social differentiation either between settlements or between members of the same community although there are minor variations from one district to another. Communal activity is indicated by rock cut tombs, sometimes with elaborate decoration, used for large numbers of burials and may be reflected in the elaborate styles of pottery in use in each settlement.

It is evident, however, that the 300 year period of the Thapsos and Milazzese cultures sees some of the most significant changes to the region including social development within the local population illustrated by rich graves and the need for a greater provision of storage for crops. The emergence of a socially stratified society in a proto-urban setting with the resources to manipulate maritime trade to suit their purposes is a feature of the period. Similar advances in technology which include the working of sheet bronze and the local manufacture of diverse types of Mycenaean pottery (5.2.8) have their foundations in this period which evidently reflects the greatest level of Aegean influence (*cf.* Leighton 1999, 182-183.)

No major change in the social organisation of the region is reflected with the start of the Pantalica I culture. Ostentatious burial practices continue and the differences are most clearly seen in the widespread adoption of cremation, apparently at an earlier date than its regular use in Greece and the changed fabric of the pottery. It is likely that economic conditions have changed, since hoards of metal including both scrap and complete items are a feature of the period as they are in many parts of the Aegean.

3.5 THE SOUTHERN ITALIAN PENINSULA

In the second millennium BC the culture found in the peninsula south of the Po valley may be considered a single unit known as Apennine[3], which was first identified in the 1930's by Bellini on the basis of a uniform style of pottery using a fine burnished fabric and featuring distinctive handle types. Peroni in 1959 further defined this cultural group by identifying three main typological and chronological phases – Apennine (1400-1300 BC), Subapennine (1300-1200 BC) and Protovillanovan (1200-900 BC)[4]. A Protoapennine-style (1800-1400 BC) was identified later, which featured handles and shapes somewhere in between the styles of the preceding Copper Age and the following Apennine (Cremonesi 1978).

Until the Middle Bronze Age excavated **settlement** sites, other than caves, are not numerous (Peroni 1989b) and even fewer have provided evidence for internal organisation (Guidi 1992; Pellegrini 1992). Even then most settlements were merely collections of small huts with little evidence of internal differentiation either in architectural features or material culture. The evidence to date suggests a sparse pattern of non-hierarchical settlements across the peninsula, modest in size and evenly distributed (Cazzella & Moscoloni 1998, 156 for Apulia). Indeed a survey conducted in the area between Gravina and Venosa found no evidence of settlement hierarchy until the Iron Age (Vinson 1973). A few exceptions to this pattern have been demonstrated (Holloway 1975; Albore Livadie 1991-1992).

Cipolloni Sampò (1986b) has argued that Toppo Daguzzo, in northeast Basilicata, which is situated on a boundary between two environmental zones and on a major communication route, was in fact a 'central place' (cf. Stoddart 1995 on determining a 'central place' in C.Italy) dominating its own area from the later 4th Millennium BC until the 8th century BC. The main area of the site is not in itself very large, with the Copper Age ditch enclosing approximately 4000 m^2, but the excavator describes it as significantly

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[3] Though Cazzella and Moscoloni (1998, 158) warn that 'cultures' based on pottery styles are in some cases restrictive.
[4] See Table 3.3.

larger than any in the surrounding area. The sites of La Starza and Ariano Irpino may have been similar central places, but once again survey data is lacking to relate them to their surrounding area (Trump 1957, 63, 1963).

Similarly, the site of Tufariello near Buccino (Fig 3.14), further to the south, with its single roomed rectangular houses may represent another settlement of this type, situated, as it is, in a good defensive position, close to the confluence of the rivers Platano and Tanagro on an natural communication route passing from the coast to the mountains (Barker & Stoddart 1994). The addition of a defensive settlement wall, the use of stone architecture and the evidence of olive and vine cultivation in the 2nd millennium BC provide some of the earliest evidence to support its identification as a 'central place' in the district (Stoddart 1995). Further evidence of olive cultivation has been uncovered in the Proto-Apennine levels (c.1450 BC, Vagnetti & Panichelli 1994) at Broglio di Trebisacce, where Aegean contact is very evident.

By the beginning of the Subapennine period further changes become apparent in the southern part of the Italian peninsula. Firstly there is an increase in the number of settlements identified. To date some 75 significant settlements have been recorded in the region (Bettelli 2002) and this figure has been used as the basis for the calculations of presence in Chapter 5.3.

Inland sites demonstrate a clear preference for naturally defended or promontory positions, whether the sites have been continuously occupied since the earlier period (Toppo Daguzzo and La Starza) or are newly formed (Timmari, Botromagno). Along the coasts of the Adriatic and Ionian seas a number of heavily fortified settlements are developed, all associated with ports, such as Broglio di Trebisacce, Porto Perone, Scoglio del Tonno and Coppa Nevigata (Cazella & Moscoloni 1998, 1999). These changes are apparently contemporary with the developing trade with the Mycenaean world and craft specialisation resulting in workshop manufacture of local pottery imitating Mycenaean and Aegean-style storage vessels. At Coppa Nevigata there is also evidence for the extraction of purple dye from the Murex (Reese 1987; Cazella & Moscoloni 1999).

These changes indicate a significant division between inland and coastal sites, perhaps the widespread development of settlement hierarchy, but the information that is needed to confirm this, especially the relationship of these sites to their surrounding areas, is still largely lacking. Recent work has demonstrated at the site of Broglio di Trebisacce that an initial even distribution of settlements is replaced by a ranked settlement hierarchy with a 'central place' at Broglio emerging in the Late Bronze Age (Peroni 1989). Similar transformations of settlement organisation are now beginning to be observed at Torre Mordillo (Bellardelli 1993). Similarly the development of an internal road system dividing up domestic sectors and craft specialisation areas in Coppa Nevigata suggests evidence of centralized control also in this region (Cazzella & Moscoloni 1999, 210) and is probably the pattern for other coastal settlements in Calabria, Basilicata and Apulia (Whitehouse & Wilkins 1989; Stoddart 1995). Other coastal regions of southern Italy, where the Mycenaean contact, to date at least, is limited, show similar economic development (Recchia 1995; Tunzi Sisto 1997).

While information about agricultural practices and crops is largely absent for the Bronze Age[5] it may be noted that several sites are located on routes leading into the mountainous hinterland (Marino 1998a & b) and that specialised ceramic types appropriate for milk processing are present in the pottery repertoire. Both suggest there was a strong stock-raising component in the economy as can be observed in later periods. Most communities probably practiced mixed stock-keeping dominated by sheep (Agostini *et al.*, 1992; Barker 1976; Barker & Stallibrass 1987; Wilkens 1991; 1992; Barker 1995, 150). Across most of southern Italy the main agricultural crops were wheat and barley with some millet, oats, flax and legumes (Barker 1995, 149). Hunting was apparently a regular practice but cannot be determined whether it provided a dietary supplement or constituted an elite activity (as in Bronze Age Greece: Halstead 1999a, 84-85; Hamilakis 2003). The appearance of olive pits suggests local cultivation and is unlikely to result from independent discovery. The introduction of the donkey at Coppa Nevigata in the Late Bronze Age, so far the earliest identified, may have led to changes in agricultural and trading practices with donkeys providing better means of access to the hinterland (Bökönyi & Siracusano 1987, 207).

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[5] Although there is a long tradition of archaeobotanical research there are still only relatively few sites that have been studied thoroughly: see for example Constantini 1991; Constantini & Nencioni 2001; Constantini & Stancanelli 1994, Perrino *et al.* 2000), mainly dating to the Neolithic period.

A variety of **grave types** have been identified during the Bronze Age and these include cave burials, rock cut tombs, megalithic tombs, cist and earth graves. In most cases the cemeteries are located well outside the boundaries of the settlement, with one notable exception at Coppa Nevigata where, during the 13th century BC, burials were located within and close by the defensive walls suggesting perhaps the special nature of the community here (Cazella & Moscoloni 1999).

Some tombs reflect social differentiation already from the Copper Age onwards, though the majority provide little evidence of status and lack the conspicuous material wealth and ostentatious funerary ritual of many other societies of temperate Europe. The Copper Age 'Chieftain's tomb' at Mirabella Eclano (Malone *et al.* 1994, 188), an adult male buried with his dog, 7 pots, 2 flint daggers, 42 flint arrowheads, 32 flint trapezes, 3 copper daggers, a copper axe and a pointed stone rod is unusual for allowing the identification of objects belonging to a single individual.

Rich burials continue into the Bronze Age but are not numerous (see for example Grotta Mannaccora - Recchia 1995 and Trinitapoli - Tunzi Sisto 1997, 1999). The Early Bronze Age (Proto-Apennine) warrior buried in a tomb at Parco dei Monaci at Matera was equipped with a bronze flanged axe, a triangular dagger and a solid-hilted dagger, a practice similar to that in wealthy contemporary burials in central Europe (Harding 2000, 97-100; 399). At Toppo Daguzzo three monumental tombs have been excavated which also date to the Proto-Apennine phase (Cipolloni Sampò 1986b). Tomb 3, a rock-cut rectangular chamber approached via a sloping dromos (Fig 3.15) has provided evidence of two levels of inhumation. In the upper level 10 disarticulated and fragmented skeletons were recovered with no grave goods. The lower level consisted of 11 burials, 6 male, 4 female and one child of 4-6 years. Bronze weapons accompanied all the males, while three of the females had beads of rare material, amber, glass and rock crystal. Mycenaean sherds found in the dromos (LH IIIB/LH IIIC1) were not grave goods and postdate the use of the tomb (1450-1400 BC – Cipolloni Sampò 1986b; 1998).

Elsewhere Mycenaean sherds have been found in tombs of the Sub Apennine phase where they are thought to be the remains of prestige grave goods (as at San Cosimo d'Oria – Tiné & Vagnetti 1967; Maruggi 1993). The tombs containing Mycenaean finds are of varied types ranging from the elaborate megalith at San Silvestro-Giovinazzo (Lo Porto 1961; 1967; Peroni 1967) to the *specchia* of Santa Sabina where a stone cairn enclosed two dozen rectangular graves (Lo Porto 1963; Tiné & Vagnetti 1967; Coppola & Cinquepalmi 1998). Each was covered with a stone slab and all produced Mycenaean pots. Significantly Grave 12 had only imported vases as grave goods (Cipolloni Sampò 1987).

A further body of evidence is available for the development of **ritual**. Already during the Neolithic period the focus of ritual seems to be in secret, hidden sites, difficult to find and enter. These include natural caves, rock shelters and crevices, as well as artificial rock cut tombs and other structures. Whitehouse (1990, 1992, 1995) has characterised this as 'underground' religion. Apart from this theme of secrecy a link has also been suggested with hunting and with unnatural water, defined as stalagmites, stalactites and bubbling water (Malone *et al.* 1994, 136). This practice continues into the Copper Age and Bronze Age. Caves such as Grotta di Latronico, associated with sulphur springs and Grotta Pertosa, with a stream issuing from the mouth of the cave are two examples that continue into the Bronze Age (Patroni 1899, Rellini 1916). The megalithic tombs and menhirs found in Apulia, which date most probably to the 2nd millennium BC, may also have begun to provide a locus for a more open, public and visible cult focusing on ancestral monuments, in marked contrast with earlier practices. This development shift from an essentially 'private' focus to a very public one has been associated with increasing complexity in S. Italian society (Malone *et al.* 1994, 188; and above).

The southern part of the peninsula lacks **metal** ores altogether and so either the artefacts themselves or the raw materials had to be imported. In Italy the two principal zones of bronze production were the Po valley and Etruria, where many settlements, even those at some distance from the ore sources, have yielded evidence of metal-working, (Carancini 1992). The distribution of metal items further south suggests that they were predominantly traded by ship along the coastline and using the major rivers (Peroni *et al.* 1980).

During the 13th-11th centuries, with the advent of the **Proto-Villanovan** culture the situation in southern Italy changed. Proto-Villanovan burial is characterised by cremation burial grounds utilizing urns similar to those of the classic Villanovan Iron Age but without the characteristic biconical shape. They practised both collective and single burials using either inhumation or cremation.More bronze goods were used, though these were still limited in number compared to the north, hoards appear and moulds from Grotta Manaccora and Scoglio del Tonno provide direct evidence of local manufacture. The types in use are more varied than before and include tools such as axes, knives and sickles as well as the standard sword and daggers. Bietti Sestieri relates this change directly to Aegean influence firstly, because the distribution of metal finds in southern Italy is strongly correlated with the coastal sites with Mycenaean pottery and with inland sites situated on communication routes through the peninsula (1973, 383-424). Secondly the hoards of the Proto-Villanovan phase sometimes combine local bronze types with others of Aegean manufacture or affinity.

Most fine ware *pottery* of the Apennine culture is a hand-made dark surfaced 'impasto' ware fired at temperatures below 750-800 degrees centigrade (Buxeda i Garrigos *et al.* 2003). These table wares are typified by elaborate handles and incised decoration, including hatching, dotted bands, spirals and meanders (Fig 3.11 – 3.13 for the different varieties of Apennine pottery). Carinated bowls with a single exaggerated handle, 'horned', 'tab' or 'axe' varieties (see Trump 1966, fig.37, 38), are very popular in the main Apennine phase. It is likely that these vessels were made for display. Coarse ware shapes were largely undecorated, with any decoration confined to pinched or thumb-impressed plastic cordons. Subapennine pottery goes through a simplification process that results in much less decoration and less elaborate handles, with perhaps the increase in the use of bosses. It is not always possible at settlement sites to make a clear distinction between Apennine and Subapennine pottery (see for example the Biferno valley project, Barker 1995, 133-137). The pottery of the Protovillanovan phase is characterised by its similarities to that of the ensuing Villanovan Iron Age.

A systematic analysis of regional styles is still awaited for Apennine and Subapennine pottery although some features have been noted, such as the preference in the north for

funnel shaped Apennine 'milk-boilers', while in the south they preferred the perforated bowl. In the same way preferences in handle-styles have been identified with a similar geographical distinction – horned handles in the north and axe handles in the south.

3.5.1 Overview of the developments during the period from 1800-1100 BC

While the tradition of the differentiation of elite burials was already developed in the Copper Age in this region, this has become more obvious by the Subapennine period. There is little evidence of stratification, however, in Apennine Bronze Age settlements. Most of these are simple collections of huts with no internal differentiation in architecture or material culture which seem to reflect an agricultural society with few social divisions. The emergence of settlement hierarchy, particularly along the Ionian coast (e.g. Broglio di Trebisacce) and the communal effort in construction of fortifications which occurs in parallel with this, both seem to indicate a movement towards urbanisation. Communal activity begins to focus *inter alia* on megalithic burial sites, and it may well be the case that these had symbolic value in defining and reinforcing political divisions. Changes to agricultural storage practices, and the introduction of the viticulture and olive cultivation suggest a better utilisation of the locally available resources. The quantity of metalwork also indicates a more advantageous control of scarce commodities and it is surely no coincidence that this period sees a very considerable presence of readily identifiable Mycenaean material in S. Italy.

As in Sicily, but not mainland Greece, cremation is used very widely in funerary rituals from the 12th century on, but it cannot yet be determined whether this was the prerogative of specialised groups or the elite in each community.

3.6 EPIRUS AND ALBANIA

Research into the prehistory of Epirus and Albania has been relatively limited though the region has been a focus of attention since the 1930's, first as part of the search for Dorian invaders (Hammond 1967a, 389-395) and later as a potential source for the handmade burnished ware found occasionally in the Mycenaean heartland in the 13th century BC[6] and characteristic of the first phase of LH IIIC at Lefkandi and other sites (Popham & Milburn 1971, 338, fn.7&8, who prefer an Italian origin for these). Both regions are economically poor and the extensive erosion and alluviation is likely to have obliterated some sites and covered others over. Intensive survey in the southern part of the region is beginning to reveal the density of settlement (Tartaron & Zachos 1999; Tartaron 2004).

The native culture is best known from **burials**, which in Epirus are exclusively cist (Fig 3.16b) and pit graves from the Middle Bronze Age onwards. From Pogoni northwards and throughout Albania, tumulus burial is the standard practice. Tumuli range in date from early examples like that at Pazhok (Fig 3.18a), to those that were first used in the 12th century BC such as Barç (Fig 3.18b), and this tradition continues into the Iron Age. Albanian tumuli are c.15-17m in diameter and often contain dozens of burials, although the majority of these are Iron Age in date. Burials within or below the tumuli took the form of pits or cist graves and it is sometimes possible to detect an original central burial (e.g. Barç I, Andrea 1985, 243). Inhumation of individuals was the standard practice throughout Epirus and Albania.

Settlements are hardly known in Epirus except from scatters of the relatively crude local pottery typical of the Late Bronze Age (Fig 3.17) with a few exceptions such as the disturbed prehistoric deposit under the Bouleuterion at Dodona (Fig 3.16a, cf. 5.4.1). In Albania at the sites of Maliq (Phases IIIc & d, Prendi 1966, 1982) and Sovjan (Layers 5c, 6 & 7, Korkuti 2003) in the Korçe/Koritsa basin, timbers preserved by the rise in the water

[6] Such as that found at Mycenae and Tiryns (French & Rutter 1977).

table in the vicinity show that the houses were predominantly timber built. No obvious changes can be seen at either of these sites between the Middle and Late Bronze Ages. The economy at these two sites, presumably typical of the majority of those in the valleys and lake basins of the region, is based on cereal agriculture, probably including millet (Korkuti 2003, 233), stock-raising and fishing. In the upland areas pastoralism may well have been more important at this period as it is today, but there is no evidence to support the frequent assertions (Halstead 1987, 199 *contra* Hammond 1967a, 353; Vokotopoulou 1986, 340) that the people of Epirus (whether Dorians or not) were nothing but transhumant shepherds.

While it is clear that urbanisation was already present in or becomes a feature of all the other regions of this study, in Epirus and Albania even the establishment of Greek colonies from the end of the 8th century BC did little to promote this process which can hardly be detected in the interior until the 4th century BC (e.g. at Cassope: Pseudo-Scylax 31; Hammond 1997, 30). In Epirus there is insufficient evidence to ascertain whether fortification walls recorded in the southern coastal districts predate Mycenaean contact or not, though Tartaron (2004) believes on the basis of survey work that actual settlement of Mycenaens may be demonstrated at Ephyra. In coastal Albania small, fortified settlements (*Gradine*) such as Badher (Korkuti 1982, 236-238) are a feature of the early Iron Age but do not appear to have existed before this.

The discovery of moulds at Sovjan (Korkuti 2003, 233) indicates that metalworking was taking place at this centre but no detail is yet available whether the objects made had any Mycenaean characteristics. The variations on Mycenaean metalwork (5.4.7) found in this region also suggest the presence of local metalworking centres. In contrast to the relatively low level of material culture exhibited by pottery manufacture, metalwork is surprisingly well represented. Despite the difficulties of communication, Mycenaean-style swords and spears are found both in cist graves in Epirus and tumulus graves in Albania, ranging in date from early rapiers to Type F and Naue II swords. Curiously there are no distinct native forms of metalwork until late in the Bronze Age when new styles of ornament appear, such as spiral terminal rings and ornaments. No Mycenaean jewellery forms are present.

So far no imported Mycenaean pottery is reported at either Maliq or Sovjan. At the cave site of Tren, however, on the shores of lake Prespa, local pottery both plain (Fig 3.19a-c) and incised (Fig 3.19d) has been found together with a number of imported Mycenaean pieces (LH IIIB-LH IIIC) as yet hardly illustrated in publication. Both Maliq and Tren have a modest number of examples of matt-painted ware, usually termed Macedonian (Fig 3.19e-g). (In the recent communist past, Albanian archaeologists regularly claimed that these were the earliest examples of the type (e.g. Prendi 1966), but the recent finds at Aiani (Karamitrou-Mendesidi 1993a, 1996, 1999) predate them and suggest that western Macedonia may be the original centre of development). At Dodona there is a little evidence that matt-painted ware may already be in use (Hammond 1967a, 298; Wardle 1972, 200-202), but without stratification this cannot be demonstrated.

The local pottery tradition does not indicate a high level of technological skill, with rough burnishing and low firing temperatures and there are no obvious examples of high status 'tableware' as found in Sicily or Macedonia, for example. Among the coarse sherds there are often fragments decorated with finger-impressed cordons and pellets (which are distinctively Epirot in style), which have been compared erroneously to the handmade burnished ware from Italy (Vokotopoulou 1969), but there is no comparison in terms of quality between the two and, as already mentioned, with pottery found in the Mycenaean heartland. Better quality handmade, roughly burnished pottery has been found in many of the tombs. Shapes include a two-handled bowl reminiscent of mainland Greek Middle Helladic shapes, and one handled cups, which have been likened to examples from southern Italy (Vokotopoulou 1969, 179-207).

3.6.1 Overview of the developments during the period from 1800-1100 BC

While any attempt to reconstruct the nature of society in these regions is premature, since there is so little settlement evidence, the graves and the finds in them indicate a stratified society. The frequency of weapons types in comparison to 'typical' burials in the Mycenaean heartland suggests that many of these burials are of elite members of small local communities who demonstrated their status through the display of prestige

weapons at death and presumably also in life. It was presumably this desire to demonstrate status that fostered contact with Mycenaean Greece and the development of local metal workshops in an area where mineral resources are scarce. The use of tumulus burial in Albania may indicate an even greater desire in that region to demonstrate status through a visible grave monument and to bind the community in death as well as life in a common burial place. There is no obvious change in this social pattern during the Late Bronze Age.

3.7 MACEDONIA

3.7.1 Central Macedonia

During the Late Bronze Age, (the period equivalent to LH I-LH IIIC) the lowland areas of central Macedonia have an abundance of settlements which illustrate a stable and prosperous society which seems to have developed with little change in its character from the Middle Bronze Age. It is still uncertain how far the local material culture of the Late Bronze Age differs from that of the previous period. Only where imported datable material is present, such as the Grey Minyan ware at Molyvopyrgos or the early Mycenaean pottery at Torone, is it possible to distinguish the two periods readily. In the hinterland away from the coast such imports are few and far between.

Tell settlements, the small, steep-sided mounds known in Macedonia as toumbas (Fig 3.20), are usually of less than 1 hectare in size and typical of the area from the Axios to the Langadas basin, with occasional exceptions in the plain near Naoussa and at Angista (Andreou & Kotsakis 1986, 57-86). Late Bronze Age tell sites have not been found to the north of the modern Greek frontier (Kamenska Čuka in the upper Strymon valley is not a habitation tell - Stefanovich & Bankoff 1998, 225-336; see below). The distance between settlements is often not more than 5 km, particularly in the more fertile regions such as the Axios valley. Some form of differentiation is evident between settlements, not only in their size and location, but also in their internal organisation and use of space, which may well reflect their status. Prominent tell sites such as Assiros and Toumba Thessalonikis were certainly bounded by massive retaining banks (Wardle, K.A., 1997b, 525). It is likely that this is true for the majority to judge by the steep profile of the mounds, though only further excavation can confirm this. Andreou (2004) suggests the probable emergence of loosely associated networks of such sites, which provided mutual security. Among these sites, individual toumba-based communities may have taken the lead to produce a more hierarchical structure of dependency. Burial sites, however, have not been identified in this region and thus there can be no confirmation of the development of hierarchies within particular groups.

Typically the settlement consisted of an agglomeration of timber and mud-brick buildings, roughly rectangular in plan with parallel streets dividing the blocks from each other. At Assiros large-scale storage facilities have been uncovered (Wardle, K.A., 1993, 130), dating to the 13th century BC (LH IIIA/B). This provision for storage evidently exceeded the needs of the tell community itself and thus implies the need for central storage by this period, perhaps intended as a reserve to meet the needs of the surrounding area in times of crop failure. Survey work in the Langadas basin (Andreou and Kotsakis 1995b) failed to locate any 'flat sites' which might relate to Assiros as a central place. The relationship between the mound settlements in this district remains to be elucidated. Excavations at Toumba Thessaloniki have also uncovered a central building, but of LH IIIC date, with provision for storage (Andreou *et al.* 1996, 582).

The period as a whole is characterised by hand made brown burnished pottery in distinctive shapes such as the cut away neck jug, wishbone-handle bowls and storage jar with deep necks and two or four vertical handles, all in use from the Middle Bronze Age on (Fig 3.23). Curiously, there are no small drinking vessels until these were supplied from the Mycenaean repertoire. Coarse ware items include the compound cooking stands characteristic of Macedonian Late Bronze Age sites, which are well represented in every excavation (Fig 3.24). Techniques of manufacture and pottery forms vary little though there are some local variations (Kiriatzi *et al.* 1997, 3). Large pithoi made from a distinctive gritted fabric are common during the Late Bronze Age but do not appear to have been used any earlier for storage.

Provenance analysis on the handmade wares has shown that in the case of Toumba Thessalonikis and Assiros, the majority of the pottery used non calcareous clays readily available in the surrounding area (Toumba - Andreou *pers. comm.* & Assiros - Jones 1986, 108-112, 494; Buxeda I Garrigos *et al.* 2003). Evidence of pit kilns for the firing of this kind of pottery has been found at Agios Mamas (Heurtley 1939, 5-7), Sindos (Kiriatzi *et al.* 1997, 4) and Polychrono (Pappa 1990, 393-98).

Decorated local pottery is less frequent but includes 'Macedonian' matt-painted types (Fig 3.21) with a principal distribution pattern from West Macedonia to the Axios valley. At Toumba Thessalonikis, Andreou has highlighted the high quality of 'table ware' of this kind during the first part of the Late Bronze Age and suggested that it may be used as high status drinking sets (Mycenaean Seminar 16/01/2002; Andreou 2004). The character of the Aiani matt-painted wares suggests that western Macedonia may be the origin of these wares. Vases with incised paste-filled decoration[7] (Fig 3.22), with a principal distribution from the Axios to at least the Drama plain, have affinities with contemporary cultures in the Danube Valley (Wardle, K.A., 1980, 1997a, 445).

The first wheel-made pottery includes MH Minyan at Agios Mamas and Molyvopyrgos (Heurtley & Ralegh Radford 1927) and a few pieces of LH I-II at Torone (Cambitoglou & Papadopoulos 1988) and Kalamaria (French, D.H., 1967). By LH IIIA2 Mycenaean pottery is regularly imported and seems to have stimulated the local production of wheel-made pottery in imitation (5.5.8), but the technique does not appear to have been adopted for any of the local wares described above. During the LH IIIB and LH IIIC period, both handmade and wheel-made pottery coexisted at many of the sites but the wheel-made never comprised more than 5-10% of the total assemblage.

Four sites provide most of our knowledge of the character of tell settlements – Assiros, Kastanas, Toumba Thessaloniki and Vardaroftsa (Axiochori). A fifth site where fresh excavation has taken place in the last few years is Agios Mamas (now reported as Olynthos) which will add to this picture when it is finally published.

Assiros appears to have been settled during the Middle Bronze Age and was surrounded by a defensive bank from this date. The character of the material culture identified in the early levels tested by excavation in small areas at the edge of the mound, is generally the same as that of the Late Bronze Age, with minor differences in the quality of the handmade burnished fabric. Between c. 1800 and 1300 BC the mound had risen 11 metres above the surrounding countryside and had been provided with casemated terrace banks, which were regularly renewed to provide a defensive perimeter. At this date much of the

[7] The paste fill varies from red to white.

area on the summit of the mound was occupied by granaries (centralised storage facilities). The study of carbonised seeds from the storerooms indicated that millet was a crop cultivated at Assiros (and Kastanas) as in Albania and S. Italy but unlike in southern Greece, where it is as yet unknown.

The buildings were separated into groups by parallel streets and in each successive phase the remains of older mud-brick walls were used as foundations for the new. Mycenaean pottery appears regularly from Phase 9 (LH IIIA2/B). Local imitations appear almost at once and become gradually more numerous. Around 1200 BC[8] (Phase 7) there seems to be a change in the organisation of the community and storage becomes scattered rather than centralised, room sizes are generally smaller and contact with the south is reduced (Fig 5.47). Occupation continues, however, apparently without break into the Iron Age when the site was temporarily abandoned c. 900 BC.

Study of the small objects from the Late Bronze Age levels at Assiros suggest that metal was in regular use, to judge from the number of whetstones for sharpening knives. However, bronze objects, with the exception of cylindrical beads, are infrequent and were presumably retained for recycling. Bone tools still form an important part of the repertoire while, more surprisingly, it seems that chert sickle inserts and polished stone axes were still in use (Wardle & Wardle 2001).

The picture is similar at the tell site of Toumba Thessalonikis, which, although it has not been extensively excavated below levels of 13th century BC date, has evidence of planning and centralised storage. In addition excavations down the side of the Toumba revealed the remains of a section of casemated wall which has provided important information on the method of construction, particularly in the way these walls enclose the earlier levels of the site (Fig 5.50).

Kastanas was occupied from the Early Bronze Age until the Early Iron Age but there are a number of points where the sequence seems incomplete. Originally an island in the course of the river Axios, it was presumably fortified like other tell sites in the Late Bronze Age,

[8] But see 3.2.

but no trace of this has been detected in excavation. Levels have been excavated belonging to the equivalent of the early Mycenaean period and the 13th century BC when the summit seems to be occupied by large isolated buildings rather than the agglomerated groups of the final Bronze Age and Early Iron Age. Andreou (2004) suggests, that unlike Assiros and Toumba Thessalonikis, it does not have the character of a central place.

Although the pottery repertoire is similar to that at Assiros in terms of shape, the quality of the fabric is different, usually coarser and less well burnished. Study of the animal bones from Kastanas provides a clear picture of the pattern of animal exploitation (Becker 1986, 239-253). Among the domestic animals there is a shift from the dominance of cattle to sheep/goat at the beginning of the Middle Bronze Age (Becker 1986, Abb. 88), while from the same date the horse appears regularly in the bone assemblage. Hunting plays a rather more significant role than in southern Greece accounting for around 20% of the assemblage from the Early Bronze Age to the later stages of the Late Bronze Age. In the final stages of the Late Bronze Age (Schichten 13 & 12, Becker 1986, Abb.85) hunting seems to play a role unprecedented at any time in Greece since the introduction of agriculture. In these levels the bones of wild animals, especially roe deer, account for over 50% of the assemblage. A similar pattern of animal exploitation is reported at Assiros (Halstead & Jones in Wardle 1980, 265-267).

Vardaroftsa was excavated in the 1920's and small-scale soundings revealed that it was first occupied in the Early Bronze Age. It seems to have been occupied more or less continuously until the Iron Age. It can now be seen that the remains of structures and the variety of finds are very like those discovered in more recent excavations.

The stability of the society which created these mound settlements is emphasised by the continuity of the basic material culture, the repeated reconstruction of building with the same ground plan and the maintenance of a well defined defensive perimeter which led to the height of the successive levels in each mound. There is no evidence of central buildings of higher status, nor any indication whether this region was politically unified, or more probably, occupied by a series of similar but independent communities. The absence

of burials is such a marked difference from the Mycenaean heartland that one may suspect very different social and ritual practices in respect of death.

All the sites seem to have suffered frequent destruction by fire, perhaps relating to natural disasters such as the earthquakes, (which affect the area every 30 years or so since the region lies on a fault line generated by the movement of the Asian and European plates against each other). There is no secure evidence to suggest that these destructions, especially those towards the end of the Late Bronze Age, are the result of foreign invasion, (even Indo-European invasion), as used to be supposed (Wardle, K.A., 1997a).

3.7.2 Western Macedonia

The upland zone of western Macedonia has produced little evidence of settlement sites although burials and chance finds are quite frequent. Matt painted pottery is typical and especially well represented at Aiani (Fig 3.21, c-d; Karamitrou-Mentesidi 2000), where it has been found in cemetery sites associated with Mycenaean pottery and at the settlement of Boubousti-Platanies (Heurtley 1926-1927). This style clearly develops into the Iron Age version widespread in western Macedonia and southern Albania (Wardle, K.A. 1997b). Elsewhere in the region cist graves contain a mixture of Mycenaean artefacts and local pottery, such as at Agios Dimitrios (Poulaki-Pandermali 1990). The level of archaeological research in this region (with the exception of the district of Aiani) makes the detection of any particular developments in social organisation impossible. Such burial evidence as there is indicated substantial differentiation between those of higher wealth/status and others on the basis of the weapons and other items present.

3.7.3 Eastern Macedonia and Thrace

Late Bronze Age finds are almost unknown in eastern Macedonia and Thrace. Exceptions include tumulus burials at Nevrokopi with incised ware jars (Fig 3.22 c, h) and similar graves at Phaia Petra which are particularly notable for the range of pottery decorated with

paste filled incision including four handled jars, a footed bowl and a double vessel (Balla 2002, 107-108; 2004, 164). Other finds include gold disks (Balla 2002, 107) and amber beads and a small cast socket spearhead (Balla 2004, 163-164). Two Mycenaean stirrup jars have been dated to the beginning of LH IIIB1 (Balla 2004, 163), probably imported from one of the 'provincial' production centres in Macedonia. The recent excavation of a remarkable 'fort' at Kamenska Čuka in the Strymon valley, north of the Greek frontier is discussed in Chapter 5.5.4). Survey work in the region revealed very few Late Bronze Age sites (Grammenos 1979; Renfrew, Gimbutas & Elster 1986).

3.7.4 Overview of the developments during the period from 1800-1100 BC

Both the conservative character of the local pottery repertoire and the long established tell settlements (however cramped and inconvenient the summits had become by the Late Bronze Age) indicate an extraordinary level of stability in central Macedonia, presumably founded on the ample cereal production of the region. The use of a regular plan for the buildings on the summit, the provision and maintenance of defensive banks and the presence at Assiros of bulk storage facilities, all indicate a complex level of social organisation even if there is no evidence from burials for the existence of an elite. The lack of 'flat' settlements raises questions about the relationship between the different tell sites, whether for example they are all peer polities of equal status, or whether the granaries at Assiros mark it out as a place of higher status.

It has to be admitted, however, that there is nothing about the manufactured objects from the tells that indicates any particularly high level of material prosperity. In the absence of burial sites (an absence which in itself should be significant) there is nothing to suggest the existence of an elite in life or in death. If such an elite existed, it must be imagined that their status was demonstrated through performance rather than ostentation, perhaps using large elaborate drinking bowls in some act of common consumption. There seems to be no place for a prestige goods network in this context and yet Mycenaean imports and imitations are widely distributed in coastal regions. The

control of mineral resources, especially of gold, may well have provided a bargaining tool in transactions with traders or other newcomers from the south.

3.8 WESTERN ANATOLIA

3.8.1 Introduction

Since Mycenaean contact and possible influence is largely restricted to the western seaboard of Anatolia and the hinterland reaching towards, but not as far as, the Anatolian plateau, discussion of the 'native' background, as far as this is possible, is restricted to this western region.[9] The varying state of research and publication of different parts of this region and the lack of any comprehensive survey of the material mean that this discussion can only be fragmentary and provisional. In addition, the changes in sea level and the riverine alluviation since the Bronze Age must have obscured or obliterated many sites. Settlements located inland, such as Beycesultan and Aphrodisias are better known than those in coastal districts, with the notable exception of Troy. Renewal of excavation at Troy, Clazomenae and Miletus has substantially improved our perspective on the region in the Late Bronze Age but the results are often published only in preliminary form. Some excavations, such as those at the important cemetery site of Panaztepe are only mentioned briefly in reports such as the survey of recent work in Anatolia in the *American Journal of Archaeology* (e.g. Greaves and Helwing 2001).

The 'native' culture is identified on the basis of the ceramic groups identified at Troy (3.8.2) for the northwest and at Beycesultan (3.8.3) for the southwest. Little is known about the character of settlements (Easton *et al.* 2002, 102) and indeed most have been identified on the basis of survey with minimal excavation. It is just as difficult to define the regions in which the different ceramic groups were made and distributed. This together with the broken, mountainous terrain of the hinterland suggests that a whole series of local culture groups coexisted and that the traditions and interests of each of these may well have been different. Cemetery evidence uninfluenced by Mycenaean

[9] The appearance of numerous Mycenaean finds in the southern coastal region at sites such as Tarsus in the 12th Century is probably to be related to the 'migration' of groups from the Aegean to Cyprus and has been omitted from this study.

contact is almost as rare, with a few exceptions such as the Middle to Late Bronze Age (Troy VI) cremation cemetery at Troy (Blegen *et al.* 1953, 370).

On this basis, it seems sensible to present case studies of these two sites, which have both been systematically excavated and well published, and, failing other evidence, may be taken as representative of the indigenous cultures and illustrate the level of sophistication that was already present in many areas of western Anatolia, together with such changes as can be identified within an already advanced social structure. A third site, Miletus, has also been treated in the same way although it is questionable how far it reflects native development rather than Aegean influence since it may well be a candidate for a settlement colony established from Minoan Crete before the end of the Middle Bronze Age and subsequently coming under Mainland influence (3.8.4).

The beginning of the Middle Bronze Age in western Anatolia is still poorly documented but it is generally accepted that, at around the end of the third and beginning of the second millennium BC, there was a shift in population and many sites were abandoned and/or violently destroyed. A number of changes have been identified that mark the transition from Early to Middle (and Late) Bronze Age in Anatolia as a whole. There is an emergence of state structure, with clear divisions of power and a complex state administration based on agriculture (Nesbitt 2000, 12), commerce and industry. Inter regional trade in Anatolia during this period is assumed to have intensified between the cities of the central, south and southeast regions, which display a distinct eastern flavour. A typical example of a wealthy precursor to the Hittite era is the central Anatolian site of Kültepe-Kanesh (Mellaart 1978). This was the site of a great palace with an influential role to play in trade, as is evidenced by the variety and richness of imported objects. It is from this site that the earliest evidence for literacy in Anatolia comes. Other 'trading' towns in central Anatolia during the second millennium, which like Kültepe-Kanesh have their beginnings in the Early Bronze Age, expanded to become heavily fortified metropolises. Khattusha-Boğazköy, which also underwent similar changes, became the capital of the Hittite kingdom in c.1785 BC when Hattusili I rebuilt the city, although the territory of this power did not yet extend in the west beyond the Anatolian plain.

Long distance trade networks were extended and there appears to have been some export of minerals and ores, particularly gold, silver and copper (Yenner 1995). The use of the potter's wheel becomes widespread with the resulting effect of increasing the variety of pottery shapes in the repertoire. In addition, the advent of written records, legal and economic, marked the beginning of Anatolian history. Such changes, which in other areas of this study occur from the 16th and 15th centuries BC and may well have been brought about through, or stimulated by, contact with the Mycenaeans, had already occurred in Anatolia well before the appearance of Mycenaean civilization. Indeed, the Hittite empire was well established by the time the first Mycenaean artefacts reached the shores of western Anatolia (3.8.5).

During the first half of the Late Bronze Age (c.1470 BC), the Hittite empire (New Kingdom under Tudhaliya I) reached its greatest extent (3.8.5) and western neighbours appear in Hittite texts as vassals or irritating opponents. At about the same time, the Mycenaean civilization of the Greek mainland became the dominant power in the Aegean, supplanting that of Minoan Crete, and the strength of the influence on the west coast became much more marked.

3.8.2 The settlement of Troy

Important excavation reports are C.W. Blegen, *Troy III, The sixth settlement*, 1953; *Troy and the Trojans*, 1963; *Troy IV, Settlements VIIa, VIIb and VIII*, 1958. For more recent prehistoric excavations led by M. Korfmann see the series *Studia Troica*.

Troy VI – c.1800-c.1300 BC (see Table 3.2 for chronology; Fig 3.25a for plan)

Changes can be seen clearly at the site of Troy in the marked differences between Troy V (dating to the Early Bronze Age) and Troy VI the first phase of which, Troy VIa, traditionally marks the beginning of the Middle Bronze Age (c. 1800). Excavations of Troy VI revealed at least three different phases of construction of the perimeter walls which enclosed the citadel, an area of approximately two hectares. The third phase of the walls is particularly clear. The walls, which were four metres thick and in places preserved up to nine metres high, were built in segments with vertical offsets on

foundations a metre thick. The masonry style of the walls differs in places, but is predominantly roughly rectangular limestone blocks and the upper level of some sections was mud-brick (e.g. tower VIg, Blegen 1953, 82). Towers interrupted the course of the walls at regular intervals and access to the interior was restricted by ingenious architectural devices.

At some point during late VIh the citadel was expanded greatly and its plan remodelled so that streets radiated out from the central point. The majority of the houses are large freestanding rectangular structures, though by the time the site was destroyed by earthquake in LH IIIA2, there is less uniformity in planning. The houses are based on versions of a 'megaron' with a number of rooms and even in some cases a second story, as is evidenced by the so-called pillar house in which a central pillar still stands. Remains of staircases also indicate the presence of upper stories. The presence, inside Tower VI, the main entrance to the citadel, of a circular paved area with two columns set in the middle has been interpreted as a shrine. This evidence of town planning extended to the area outside the citadel walls. Dörpfeld (1902, Taf III) excavating outside the walls in 1893-1894, discovered traces of Troy VI strata directly on bedrock which led him to conclude that at the time a large part of a lower city must have been settled (1902, 238). The discovery of a cemetery of cremation burials 400m south of the citadel beyond the Hellenistic city wall was considered to be the defining boundary for the limits of this lower city (Dörpfeld 1884, 123; 1902, 536). Blegen too supported the hypothesis of an extensive lower city during Troy VI (Blegen *et al.* 1953, 351).

Korfmann in more recent excavations has fully investigated further sections of the lower city (Korfmann *et al.* 2001, fig.425). He has now identified the remains of several late Troy VI houses with stone foundations and provided with clay lined storage pits (Korfmann 1994, 22, 1998, 4-12, 1999, 14-15, 2001a, fig.12). A cobbled street leading to GateVIu (Korfmann 2000, fig.12) suggests a degree of formal planning in the lower city. A 7m length of the lower city wall has been uncovered abutting the north east bastion of the citadel showing that the lower city was also well defended (Korfmann 1996, 42; 1997, 49-53; 1998, 43-48; 1999, 16-17; Easton *et al.* 2002, 92, Fig.10).

Several cemeteries were located well outside the city. One cemetery, dating to Troy VIh, consisting of a group of 182 burial urns containing the cremated remains of c. 300 individuals and set into pits was located to the south of the citadel, although only a few remained *in situ*. The pits were shallow and packed with small stones. The burial containers were closed with a stone or a plate and mainly contained multiple burials although adults and children were for the most part kept separate. The grave goods were few leading the excavator to interpret the graves as the resting-place of individuals of lower social status. This cemetery has been dated to Troy VIh when the city was destroyed by an earthquake and it has been suggested that it was established to provide burial for earthquake victims (Blegen *et al.* 1953, 377).

Troy at this period was a central place of major significance both in relation to its hinterland and as a centre of 'commerce' beside the sea route to the Black Sea. Among the 'miscellaneous objects' reported by Blegen (*et al.* 1953, 22-33) are classes which reflect connections in many directions. There are arrow heads and a socketted chisel comparable with those from Boğazköy, while knives have their best parallels 'in the Mycenaean sphere' (Blegen *et al.* 1953, 23), while the long whetstones resemble those from Macedonia to the west and Alişar and Boğazköy to the east (Blegen *et al.* 1953, 26). Stone pommels and steatite whorls resemble those from the Mycenaean heartland.

The pottery repertoire of Troy VI reflects the close links this site had with the Greek mainland in the Middle Helladic period, with Matt-Painted wares alongside the local Grey Ware[10] in the early phases. While Trojan Grey Wares and mainland Grey Minyan clearly reflect similar technologies and share a few vessel shapes, the majority are of types unfamiliar from the Aegean and seem to reflect north west Anatolian traditions. The Grey Ware is typical of the Middle Bronze Age and first half of the Late Bronze Age until gradually replaced by Tan Ware from Troy VIh onwards (Blegen *et al.* 1953, 33-38). The continuing contact in the Mycenaean period also brought innovation to the local pottery manufacture, with the production of Mycenaean wares alongside the local

[10] Referred to by Blegen as Grey Minyan, though qualitatively different from this typical Middle Bronze Age ware of the southern Greek mainland.

Grey Ware (Fig 3.26). Material evidence for contact with the Hittite world is less extensive.

Troy VIIa - c.1300-c.1200 BC (Fig 3.25b)

The earthquake, which brought about the destruction of Troy VI, resulted in the walls of Troy being hastily rebuilt (phase VIIa) while access to the city via the east gate was made even more difficult. The south gate was re-paved and a drainage system was built into it. It appears that the city was more crowded during this phase, with an estimated population of 6000-7000, which resulted in the construction of houses outside the city defences – the 'lower town', protected by a deep ditch traced for over 600m through geophysical survey. The use of pithoi as storage containers was commonplace throughout the whole city during this phase. Their use was often identified through the pits for sinking the pithoi into the floor, found in many houses (Fig 5.70c).

The local pottery repertoire alters little from previous periods, except for the widespread use of Tan Ware (Blegen *et al.* 1958, 22-23; Fig 3.27), which replaced the Grey Wares of Troy VI and the numbers of imitations of Mycenaean shapes (5.6.8). In other respects there are no significant changes in material culture, though it is of interest that the imported Mycenaean conical steatite whorls are more frequent than in the preceding phase (Blegen *et al.* 1958, 15-16).

Troy VIIb1 & VIIb2 – c.1200-1050

Troy VIIa appears to have been devastated by fire (Korfmann 1999; Easton *et al.* 2002, 85) and VIIb1 houses were simply rebuilt using the old foundations, resulting in little difference between the plans of the two levels. It is still not clear how far Troy VIIb1 extended in the lower city. House units in phase VIIb2, which may postdate the Bronze Age, were larger than in the preceding phases and a new architectural element was introduced in the use of orthostats for support between the foundations and the

superstructure. Troy VIIb2 was probably destroyed by fire and the area was not reoccupied for over 300 years.

The material culture of Troy VIIb1 continues traditions established much earlier although the quality of the pottery is poor and there is little evidence of the former wealth of the city of Troy with the exception of the architecture. Troy VIIb2 sees the introduction of Bükelkeramik, a distinctive handmade pottery originating in the eastern Balkans and there regarded as a marker for the first stage of the Iron Age (e.g. Babadag I Hänsel 1976, 229-236). As far as the remaining aspects of material culture are concerned there is little to show what is distinctive to this phase rather than residual.

During the Middle Bronze Age mixed crop garden cultivation was practiced in the Troad. By the Late Bronze Age the use of pithoi for large scale storage suggests a change in agricultural practices which is confirmed by Riehl's archaeobotanical research (Riehl 1999). It is clear that the subsistence economy of Troy VI relied on barley, although there is evidence for vine and olive cultivation. New crops such as broomcorn millet were introduced at this time although emmer and einkorn were not popular until Troy VIIa. There was a tendency towards extensification, with specialised crops meeting the purposes of the emerging elite. This increased during VIIa with evidence of systematic and widespread soil management. The area must have become deforested significantly as the use of dung as fuel during this period suggests. In Troy VIIb1, however, after the destruction of Troy VIIa the agricultural practices returned to garden type agriculture[11] using the fertile alluvium soils in the valley.

The identification of Troy as the Hittite Wilusa, supported most recently by Hawkins (in Easton *et al.* 2002, 98-101), makes excellent sense in terms of its geographical location, its regional importance as a central place and its economic role in the economy of north western Anatolia and the Aegean. Schliemann and Dörpfeld's finds already indicated that Troy's architecture and material wealth represented an unusual concentration of

[11] Similar agricultural practices have been recorded at Kastanas and Assiros in Central Macedonia (3.7.1).

resources on a scale beyond that which might be expected for the community within the citadel. The identification in recent excavations of a substantial lower city defended by an outer wall goes some way to explaining this but the size and wealth of this city indicates suggests that the local population of late Troy VI exploited greater resources than would be created by the agriculture of the hinterland and local trade. It is clear that Troy VI was a substantial urban community – a central place of major significance both in relation to its hinterland and as focus for commerce. Its commanding strategic location at the entrance to the Dandanelles and capacity to control the maritime route to the Black Sea ensured that it was utilised as a stopping point before travel in that direction or as a 'trans-shipment point or Port of Trade between independent carriers' (Sherratt in Easton *et al.* 2002, 104). Access to these trade routes resulted in its almost unique position in the Bronze Age Mediterranean receiving and exchanging an astonishing variety of artefacts.

Sherratt (in Easton *et al.* 2002, 105) also suggests that a shift in the pattern of trade from a south axis in the Aegean to a east-west axis including the central Mediterranean may have led to a decline in Troy's importance from the 13th century BC onwards.

3.8.3 The settlement of Beycesultan

Lloyd 1960, 1972; Lloyd & Mellaart 1955, 1956, 1965; Mellaart & Murray 1995.

During the Middle Bronze Age Beycesultan was, according to Mellaart (Lloyd & Mellaart 1956, 125) the capital of the land the Hittites called Arzawa and he believes that the destruction of the site (Level V) in c. 1750 was part of the Hittite invasion of Arzawa.

The Middle Bronze Age at Beycesultan is represented by four building levels (Levels V and IV c, b, & a). The extensive architectural remains from level V are associated with public activities, chiefly the remains of a 'burnt palace' on the eastern summit, a complex of 47 chambers and courts built of timber and mud-brick which was destroyed by fire, though probably after its occupants had evacuated it (Lloyd & Mellaart 1965, 72). This period has been dated to c. 1900 to c. 1750 BC by the excavators (Lloyd & Mellaart 1965, 73). Beycesultan V was subsequently reoccupied by a group of 'squatters' who built modest houses particularly in the east wing. The end of this period dates to c.1450 (Lloyd & Mellaart 1965, 74).

The pottery tradition continues in V from the preceding levels with little change except in competency of manufacture and it is not until IV that the pottery shows signs of metamorphosing into the pottery styles of the Late Bronze Age (Levels III and II). By level V wheel-made pottery has become the most common and decoration is restricted to a few grooves, ribs and plastic knobs on red, brown or purples washes. Coarse pottery becomes frequent, particularly kitchen ware from the palace area. The 'sombre' pottery (Lloyd & Mellaart 1965, 70) of this period may owe its origin to the influence of metal shapes and is seen in almost all the vessels but particularly the bowls, beak-spouted jugs with bi-foil or trefoil mouths, spouted jars and teapots (Fig 3.29). In level IV a radial pattern burnish on fine ware pottery appears. Anatolia does not show ceramic unity and Beycesultan at this period does not seem to have particularly close links with central Anatolia, even if part of the Hittite empire but belongs to the tradition of the south west coastal area where over eighty sites with pottery of this Middle Bronze Age period have been recorded (Lloyd & Mellaart 1965, 70, 79).

After the fire which destroyed Level IVa around 1450 B.C. (Lloyd & Mellaart 1965, 73), there is a clear change in the settlement layout with evidence for civic organisation (Level III). Well designed houses line two parallel streets on the eastern summit and are enclosed by a substantial retaining wall. The excavators see this as a prosperous town with strong individual characteristics). The 'detached' houses (see Fig 3.28, house consisting of rooms 1, 3 and 4) are built predominantly of mud-brick with substructure of undressed stone.

Level II represents the period of maximum prosperity and there is clear evidence of extensive replanning of the area. The residential and other complexes still line the two parallel north and south streets. Three areas deserve special mention, not least for their different functions. The standard unit of housing appears to be a complex comprising an open air rectangular court to which two rooms are annexed, a 'portico' living area open onto the court on one side and a smaller chamber, accessed through a door, which may have functioned as a bedroom or storeroom as appropriate (see particularly Unit D which held the remains of over 40 fruit stands and pithoi, Fig 3.28). This unit is frequently repeated, occasionally with the addition of a central hearth feature, around 1.4m in diameter and heavily plastered, such as in the central hall of 'Megaron A'[12] (Fig 3.28). Appended to 'Megaron A' at its eastern end are two 'shops', 13 and 14. Each room was provided with a separate entrance with a single wooden door jamb and pivot stone. Room 14 opened directly onto north street, while Room 13 was accessed via a passage way and open terrace. The latter room was provided with a short internal division, like a 'counter' with pithoi sunk into the floor behind it and therefore accessible from both sides. The pottery in the room included the pithoi and ten drinking cups of the chalice type located in the north west -corner. A group of 77 knuckle bones and 31 crescent-shaped terracotta loomweights may have been game pieces for the customers of what has been identified as a 'bar' (Lloyd 1972, 12, Pl. Vb & VIa&b). The

[12] This term is used by the excavator and is not meant to imply a Mycenaean style megaron. Werner (1993, 22-26) prefers to use the term 'megaroid houses' which belong to an 'anatolisches Siedlungsschema' (Korfmann 1983, 229) that may be found also at the settlements of Troy, Beşik – (Yassı) Tepe, Demircihüyük and Thermi, though those at Beycesultan are more impressive.

remains of eight skeletons found on the floor of the room were most probably laid there after being clubbed to death (Lloyd 1972, 13).

Room 14 has been identified as a shop on the basis of the two rows of four pithoi, each originally c.1.50m in height, and still half full of carbonised barley or lentils (Lloyd 1972, 13). Since access to these pithoi, on account of their height, would have been difficult, the remains of what was originally a brick staircase leading up to a 'cat-walk' along the inner face of the wall was identified in the north east corner. Also in this corner was a large bin built of wood and brick which contained 'more accessible' grain. Over 64 complete vessels were recovered from this room including what has been described by the excavators as a complete 'service' of vessels (Lloyd 1972, Pl.VIIa). stored in an earthenware basin, consisting of a bifoil-mouth jar, 3 fruit stands and 9 carinated bowls, 6 of which were still nestled together.

A complex with two separate entrances off the south street has been identified as a stable facility along with the private accommodation for the 'grooms' who must have looked after the horses. In room 38 along the west wall the impressions of wooden uprights, clearly identifiable as tethering posts, the manure pit in room 40 and the stables complete with mangers (e.g. room 41 and 43) led to this identification. It was further confirmed by the presence in room 41 of a floor level consisting of a thick layer of decayed straw bedding with the impressions of horses hooves still preserved (Lloyd 1972, 15; Fig 3.29a). The presence of such a facility centrally in the town highlights the importance of horses, or those who rode them, to the society. The complex was clearly destroyed by fire like the other buildings in Level II at the end of the 13th century, a period that saw widespread disaster in Anatolia (Lloyd & Mellaart 1965, 74; Mellaart & Murray 1995).

Additional excavations on the western summit of the settlement mound revealed the remains of two private houses from this level (Lloyd 1972, 20, fig.6). Religious activities of a public nature were detected in Area R where a terracotta horn feature with stamped ornamentation served as a focus of ritual activity (see reconstruction of the

shrine: Lloyd 1972, 32, fig 13.). A smaller shrine found in Area A may perhaps have been a small domestic shrine (Lloyd 1972, 37).

Important changes take place in the pottery styles with the beginning of Level III although it was not destroyed by fire so few complete pots remain from the excavated areas. This period has been called the 'ceramic renaissance' after the simple austerity of Level IV pottery, particularly with the advent of the characteristic radial- or pattern-burnish on buff, red or brown slips that simulate a metallic lustre. All pottery is now wheel-made using a fine buff ware and over 90% of the pottery by this period utilised a slip or wash. A number of different wares have been identified. A burnished ware with red/buff/red-brown or brown pattern burnish in radial patterns which produced striking colour contrasts on the surface. A ware covered with a black-brown wash, which used techniques similar to those of the Middle Bronze Age and a ware using micaceous lustrous wash is poorly represented (but becomes much more frequent in level II, Mellaart & Murray 1995, 1-2). Much of the pottery was decorated varying from simple rope impressions on coarse domestic vessels to stamped impressions on pithoi and altars and grooved decoration consisting of horizontal lines, wavy lines, and bars on other vessels. A variety of shapes are represented with the cups, chalices and fruit stands being the most common (Fig 3.30a; for a full list of shapes see Mellaart & Murray 1995, 3-5).

The pottery of Beycesultan II is better represented since it ended in conflagration (unlike level III). The most common ware of this period is the Lustrous ware, already identified in Levels VI and III, and amounts to over 90% of the pottery. The burnished wares of the preceding period are present in small quantities as well as the standard pithoi and coarse kitchen wares. The Lustrous ware is almost entirely coated with a micaceous wash, which was then polished to produce a coppery red surface or silvery grey one mimicking metal vessels. A 'gold' version of this was unpolished and the wash is fugitive (Mellaart & Murray 1995, 21). The decorative tradition of the preceding period continues in II although grooved wavy lines are the most frequent ornamentation. The pottery repertoire continues with the introduction of only a few new shapes mainly new styles of storage vessels, pithoi (Fig 3.30b, j-l), baking platters and cooking plates on

feet (Mellaart & Murray 1995, 22 with full list 22-25). Drinking vessels still remain the most common form (Fig 3.30b, c-e).

Beycesultan was clearly an important centre for the south west Anatolian region and according to Mellaart & Murray (1995, 108) independent of Hittite influence and it remains the type-site for the pottery of the region. The relative isolation (or self sufficiency of the region is demonstrated by the lack of imported Hittite artefacts and the presence of only a single Mycenaean sherd. In the same way none of the very distinctive styles of Beycesultan pottery has been recognised at western coastal sites.

3.8.4 The settlement of Miletus

Early reports on the excavations around and below the Temple of Athena are to be found in Weikert 1957, 1959/60; Voigtländer 1972 and Schiering 1975, 1979. Only preliminary reports exist for the current excavations – see Niemeier & Niemeier 1997 and Niemeier 1998.

The settlement of Miletus is exceptional in all the regions of this study since it already had a strongly, if not totally, Aegean character at the beginning of the Late Bronze Age. In the discussion here the development of the site and its material culture will be set out, even though its place as an example of Mycenaean settlement or acculturation at work may more properly belong in Chapter 5. Discussion, however, of its place in the broader pattern of Mycenaean contact and influence in western Anatolia on the basis of the evidence representing the different domains of social activity, will be reserved for Chapter 5.

Excavations at Miletus have identified three Late Bronze Age building levels: Miletus IV (c.1700-1490/50 BC); MiletusV (c.1490/50-1300 BC); Miletus VI (c.1300-1100 BC).

Miletus IV (c.1700-1490/50 BC)

The early excavations at Miletus did not identify a significant Minoan influence at the site although Minoan pottery was reported (e.g. MM III- LM1A/B sherds – Schiering 1984,

186) but recent excavations have dramatically changed the perception of this period of settlement at the site. Other than this site there are no sites in western Anatolia that have provided secure evidence for significant Minoan involvement in the area. Greaves (2002, 65-67) provides a comprehensive survey of the material and argues convincingly that Miletus was indeed a Minoan settlement at this period.

The settlement at this time included a large central structure built using fine masonry and lavish fresco decoration (Niemeier & Niemeier 1997, 229, 239, figs. 77-78). It has been suggested by the excavator that this building must have served some cult function. Minoan ware was also produced locally and the huge numbers of conical cups, with 300 complete examples so far and fragments of many more, are considered to be an important indicator of Minoan society (Weickert 1940, 328-329, 1957, pl.30.1; Niemeier & Niemeier 1997, 547. Minoan kitchen wares were also produced locally. Niemeier has so far calculated that 95% of the pottery assemblage for this period is of Minoan type (in Greaves & Helwing 2001). The presence of discoid form loomweights, common in Minoan Crete (Warren 1972, 243) is also considered a significant indicator for the presence of Minoan technology (Hommel 1959/1960, 64; Niemeier 1999, 548)

Perhaps the most significant indicator, however, of a strong Minoan influence at this site is the presence of Linear A script (Niemeier 1996; Niemeier & Niemeier 1997, 240; Fig 5.69) inscribed before firing on locally produced vessels. The apparent rarity of some of the signs in Minoan contexts suggest that whoever used it had an excellent understanding of the language and most probably used it for commercial purposes (Niemeier & Niemeier 1999, 548-549). Greaves (2002, 53) supports the idea that there was a ritual significance associated with these inscriptions. How far they could be used as evidence for adoption of the Minoan administrative systems is at this time unclear as only one clay tablet, for example, has been found. The presence, however, of a significant number of sealstones (Niemeier & Niemeier 1999, 553), three from LM IA alone (Niemeier in Greaves & Helwing 2001) and a marble disc balance weight (Niemeier & Niemeier 1999, 553 n.120) are indications of the use to some degree of the Minoan administrative systems.

Miletus was destroyed in the LM IA period (Mee 1978, 134-135; Mountjoy 1993, 170), probably as a result of an earthquake, which, according to Niemeier (in Greaves & Helwing 2001), was related to the eruption of Thera around this time. The settlement was subsequently rebuilt and destroyed along with many other sites across the eastern Mediterranean in LM II (Niemeier 1998b, 38; Warren & Hankey 1989).

Miletus V (c.1490/50-1300 BC)

Mycenaean pottery was first identified at Miletus in 1907 at the Temple of Athena with further excavations seasons conducted in 1938, 1955, 1957, at which time it was established that Mycenaean influence extended here. In 1973 Peter Hommel uncovered the remains of a building that was at the time identified as a Mycenaean 'megaron' (Kleiner 1972; 1975). This structure was interpreted by others as having been the focus of a Mycenaean settlement (Hommel 1975; Mee 1978, 136). However, more recent excavation has dated the building securely to c. 494 BC (Niemeier & Niemeier 1997, 206-208).

It has been proved by the extensive excavations since, under the direction of Niemeier, that a Mycenaean settlement replaced the preceding Minoan one at this time, though how gradual this transition was has not yet been established. It is certain however, that the Minoan settlement was destroyed by fire (Niemeier 1998a, 28) and that by LH IIIA1 all imports to the site were Mycenaean and not Minoan in nature (Mountjoy 1993, 170). It has even been suggested that it was the Mycenaeans themselves who 'conquered' this site (Greaves & Helwing 2001, 505), though this can in no way be proved at the current extent of our knowledge.

While the settlement plan for this period is still sketchily known, rectilinear domestic structures have been identified suggesting that the large building of the preceding period was replaced with a number of independent buildings. House A is classed as an 'Antenhaus' and House B as an 'Oikos Type 2' and although this was identified earlier as a 'megaron' (Schiering 1979, 77) further excavation revised this (Niemeier & Niemeier 1997, 194-9). Both these building types are well known in the Mycenaean heartland but similar structures have also been identified at Troy and Beycesultan (Greaves 2002, 57).

The horse-shoe shaped hearth outside House B, which Niemeier (Niemeier & Niemeier 1997, 219, fig. 35; Niemeier 1998a, 31, pl.2) offers as further evidence of the architectural link to Mycenaean practices on the basis of similar hearths at Mycenae and Tiryns is not a convincing parallel.

According to Niemeier, 90-95% of the locally made pottery was Mycenaean in style (Niemeier 1997, 347). Miletus was, during this period, an important centre for the production of this pottery: examples have been detected at other sites in the region (5.6.8). So far seven pottery kilns have been excavated, more than at most Bronze Age sites (Gates 1997, 268). All the kilns are mud-brick structures and three distinct types have been identified (Fig.5.71). Miletus Type 1 is ovoid in shape with a central pillar or bench and is a type that has been found in the Mycenaean heartland from the Middle Bronze Age and also identified at Liman Tepe (Niemeier 1997, 348). Four examples of this type of kiln have been found at Miletus and it is thought that they were each used to fire a single pithos. Miletus Type 2 is a similar shape but in place of the central pillar there are two supporting walls, a Cretan type. Miletus Type 3 kilns are sub-rectangular with a series of parallel interior flues, supposedly also a Minoan type.

The local Anatolian pottery, which is decidedly scarce at the site, is typical of the south western coast. The most common shapes are undecorated bowls, cups and jars, with a red wash and it finds it closest parallels with the pottery from Beycesultan (3.8.3). How Mycenaean in character this settlement was has been a subject of some debate. Desborough (1952, 220) and Niemeier (1998) describe the site as purely Mycenaean. Others, such as Unal (1991, 23-25) suggest on the contrary that the Mycenaean pottery only represents 5% of the total assemblage. Since the local Anatolian wares were rarely kept in earlier excavations more widespread excavation within the settlement is needed to support (or refute) the picture presented by Niemeier.

A thick destruction layer of mud-brick containing abundant pottery suggests that the settlement was destroyed by fire in LH IIIA2 (Mountjoy 1993, 172) or in the LH IIIA2-LH IIIB1 transitional period (Niemeier & Niemeier 1998a, 32-33). This 'man-made' (so

Niemeier) destruction of the undefended settlement has been associated with the destruction of Millawanda by the Hittites under king Mursilis II (3.8.5).

Miletus VI (c.1300-1100 BC)

The most striking feature of this period discovered under the Temple of Athena was the construction of a substantial fortification wall running east to west. Identified during excavations in 1938, 1955 and 1957, an attempt was made in 1968 to trace the wall further (Schiering 1979, 94-95). A further stretch was uncovered in excavations in 1966-1973 close to the Hellenistic wall of the city. The wall, 4.25-4.4m wide, is interrupted at 15m intervals by square bastions. Traces of cross walling suggest that it was originally casemated, a tradition that owes more to Hittite practices than to Mycenaean. The techniques of construction are almost identical to those used for the fortification walls at Boğazköy (Bittel *et al.* 1935, 1938, 1957; Neve 1993, 12-13, Abb.19 & 20; Fig 3.32). The wall, estimated at 1100m in length (Greaves 2002, 60), must have originally defined the limits of the settlement, which judging by the few traces that remain of the wall was extensive.

As with the earlier period, the settlement plan for Miletus VI is still incomplete and indeed only a single building, of the 'Corridor-house' type has been excavated. It is of a well known Mycenaean form (Niemeier & Niemeier 1997, 197-198). Stretches of a road have been found which ran through the settlement towards the harbour area (Kleiner 1972, 51).

Pottery production was now confined to areas outside the walls in the Sudschnitt area to the south, a relocation which, it has been suggested, was to limit the chance of fire within the settlement area (Greaves 2002, 60). The pottery produced during this period is largely of LH IIIB to LH IIIC style (Niemeier 1998a, 34; Mountjoy 1993, 174). Mountjoy (1993, 175) further notes that though LH IIIC pottery is relatively rare in Anatolia it was produced in some quantities at this site, highlighting its importance as a production centre. Imports of Mycenaean from the Argolid are also present and locally made Mycenaean from Miletus continued to be exported to other areas of Asia Minor (Gödecken 1988, 311-312) and mainland Greece (at Tiryns – Voigtländer 1986, 21-23). Two mud-brick kilns of the Miletus Type 3 (Niemeier 1998a, 33), dating to this period have been excavated 500m

south of the Temple of Athena (Kleiner 1979, 111-115, fig.1-2, pls.27.1-4). Once again the data to determine the ratio of Mycenaean to Anatolian wares is not available. A lenticular flask of central Anatolian type was found south of the Temple of Athena (Parzinger 1989, 429-431, fig.5) but interestingly no truly Hittite pottery has been found at the site (Parzinger 1989, 429 n.60). A fragment of krater discussed below in 3.8.5 does, however, suggest at least some exposure to Hittite culture.

The grave goods from the chamber tomb cemetery of Değirmentepe, located 1.5km to the south west included LH IIIB – LH IIIC pottery, some of which was made locally at Miletus, and metal finds which reflect the cross cultural position of this site.

Miletus was destroyed, like many sites across the Mycenaean heartland, at the beginning of the LH IIIC period. The latest pottery identified so far at Miletus dates to 1200/1190 BC, but the reason for the destruction of this site at this time is not clear (Greaves 2002, 64). Miletus clearly held an important position in the Bronze Age as a meeting point between the cultures of the Aegean and western Anatolia.

3.8.5 The Hittite Empire c.1680-1200BC

A detailed discussion of the nature and advancement of the Hittite empire is not possible within the scope of this thesis but Bryce has published excellent accounts of their kingdom and its history (Bryce 1999) and their life and society (Bryce 2002). Other useful sources are Joukowsky 1996 an introductory survey; Gorny 2000 on the environment and archaeology of Hittite Anatolia; McMahon 2000 on the general history of the Hittites and Hawkins 1999 and 2002 on the geography of the Hittite empire according to the texts.

A new era of Hittite expansion and domination over central, southern and south eastern Anatolia began in the 17th century and a powerful empire was created which influenced the history of the Near East for three centuries. Control was maintained by a Hittite nobility from the capital Khattusha-Boğazköy. By the middle of the 14th century Hittite territory extended from the Euphrates in the east, to the borders of modern Lebanon in

the south, and to the edge of the central Anatolian plateau to the west, with, at times, control even further west. It is uncertain whether it extended to the Black Sea coast to the north and no details are given in their archival records. Fig 3.31 is a map of the Hittite empire and its vassal states, based on current thought (Hawkins 1999).

This was a civilisation that overcame remarkable difficulties, particularly their hostile physical environment, to form a single political entity with cities and towns bound to its central administration by a series of vassal treaties. The wide variety of cultural groups that were absorbed into this political entity resulted in a composite culture that is reflected in the nature of their language, religion, art and architecture although the strength of trade links to the south and south east provided the dominant influence on their material culture.

A number of features deserve mention, if only to emphasise that cultural traits exhibited in western Anatolia need not have originated in the Mycenaean world. The Hittites expanded into an area where urbanisation had already occurred. They transformed the existing urban structures into an empire and established a central administrative and political authority over a series of city-states. The Hittite city-state comprised three basic components – the fortified citadel, complete with the ruler's residence, an inner town and an outer town. Typical examples of this include the capital Khattusha-Boğazköy (Fig 3.32a), Alişar, Alaca Höyük, Maşat and Kültepe-Kanesh. The architecture of the fortified citadel was monumental with huge encircling casemated fortification walls. Towns were built on asymmetrical plans (Fig 3.32b) and a characteristic trait is the individuality of each building and the lack of uniformity. Foundations were generally of stone, walls of mud-brick, topped by flat roofs. Housing complexes were linked by paved alleyways, which carried the communal sewage system.

The organization of an empire this size was ensured by management of distant regions under a 'feudal' system and the maintenance of a well-oiled military machine. Any land that was conquered signed a treaty that ensured local sovereignty but with a Hittite overlord. In return the Hittite ruler required loyalty and the provision of men for the military forces.

The Hittite economy was based on state managed agriculture and animal husbandry. Agricultural products included wheat and barley, fruits and, in the coastal region, olives from which they certainly produced olive oil. They believed that the gods owned the land and the king had the authority to distribute it amongst deserving subjects. Indeed Hittite religion was based on the worship of natural phenomena that took the form of deities. Textual evidence includes the administration of temples, prayers and incantations (Beckman 1989). However Hittite religion recognised many different local cults and texts speak of 1000 gods. The state cult that emerged was a synthesis of the worship of many different Hittite, Hurrian, Syrian and Mesopotamian gods.

In common with many parts of the region, major upheavals took place in the Hittite Empire at the end of the 12th century, resulting in a much reduced area of control which probably no longer included any part of the western Anatolian coastline.

3.8.6 The Ahhiyawa Question

It is very probable that Mycenaean settlers were present along the west coast of Anatolia by LH IIIA1, with strong indications of an established community at Miletus (3.8.4; 5.6.8). It is also necessary to consider the information provided by the Hittite texts, particularly concerning the land of Ahhiyawa and the identification of Miletus as Millawanda/Milawata, the chief base of the Ahhiyawans in western Anatolia. While it is generally accepted that the Ahhiyawans may be identified with some group of Mycenaeans there is still no consensus of opinion on whether they were based in the Mycenaean heartland (e.g. Mycenae or Tiryns) or the west coast itself (Bryce 1985, 1986, 1989a, 1989b, 1999; Mee 1998, 142; Hawkins 1999, 2002). Of course it remains uncertain whether the Hittites understood Ahhiyawa to be the same political entity during the Late Bronze Age, or whether it was simply a term for groups of troublesome neighbours in the Aegean of whom any one might be in question in a single document. The section that follows provides a summary of the role the Ahhiyawans played according to Hittite texts

and indicates where this could correspond to our current state of knowledge of Mycenaean involvement in Anatolia.

It was during the 1920's that the issue first gained significance when Emil Forrer (1924a, 1924b) claimed to have found Homeric links in the texts of the Hittites and first put forward the suggestion that Ahhiyawa = Achaiwa, the ancient form of Achaia used in Homer, and therefore referring to the land of the Mycenaeans.

In the Hittite texts the activities of the people called the Ahhiyawans span a period of approximately two hundred years, roughly from the 15th to the end of the 13th century BC. The Indictment of Madduwatta, a letter written by the Hittite king Arnumanda, son of Tudhaliya, to Madduwatta, a supposedly renegade Hittite vassal in western Anatolia, provides the first mention of Ahhiyawa (Bryce 1989, 5). We learn from this text that an Ahhiyawan, Attariššiya had established a base in western Anatolia from which he conducted military raids with the support of substantial sea and land forces. This has now been dated to the reigns of Tudhaliya II and Arnuwanda I, which according to conventional Aegean chronology would be LH IIB, a period when only a few sites on the west coast have any indication of Mycenaean activity, among which is Miletus. Sturt Manning (1999) offers a different interpretation of the chronology where the late 15th century is equivalent to LH IIIA1, by which time there were definitely Mycenaean settlements on the islands of Rhodes and Kos (Mee 1998, 142) and a vigorous Mycenaean expansion into the west coast of Anatolia resulting in a settlement in Miletus (see Table 4.14). In any case there is some evidence that Mycenaean contact had been established with the west coast of Anatolia as early as LH I and could have been the location of the base from which Attariššiya campaigned.

It is surely not coincidence that the campaigns of Attariššiya occurred at approximately the same time that Mycenaean domination of the Aegean area replaced Minoan influence and that Mycenaean finds at Miletus predominate and Minoan disappear around the beginning of the LH IIIA period. This may have resulted in the region around Miletus becoming a vassal state of Ahhiyawa, which then became a prize to be seized and controlled by each side in turn.

Attariššiya's actions seem to have paved a way for more extensive involvement in the region and, indeed, an expansion of Mycenaean influence can be observed from this period, particularly in the area around Ephesus. By the third year of the reign of Muršilis II it is recorded that at least two states, Millawanda and Arzawa, had tried to break from their Hittite overlords and formed an alliance with Ahhiyawa. The Hittites retaliated promptly by sacking Millawanda in c.1318 (towards the end of LH IIIA2 according to the chronology of Warren and Hankey, 1989). Miletus itself was destroyed by fire at the end of LH IIIA2 (Mee 1978, 135; Niemeier 1998a), which adds further support to its identification as Millawanda. Despite this it seems that Ahhiyawan control still extended over Millawanda by the early 13th century (LH IIIB) as is suggested in the Tawagalawas Letter. Though there appears to be some dispute over the authorship of this missive, either Hattušili (Singer 1983, 209) or Muwatalli (Ünal 1991, 33-34), it is clearly a request to the king of Ahhiyawa, whom he addresses as 'My Brother, the Great King, my equal', for permission to enter Millawanda.

During the course of the 13th century this control spread further into Hittite territory and the Seha riverlands (the Hermos valley according to Hawkins 1999) came, temporarily at least, under the control of Ahhiyawa, - a move which was quickly countered by Tudhaliya IV whom Bryce suggests (1985, 17-23) attacked Millawanda, deposed the Ahhiyawan vassal and returned the city to Hittite control. That by this point the two were at war is also confirmed by the Šaušgamuwa Treaty, in which Tudhaliya IV requests that no ship of the Ahhiyawans, with whom they were at war, be allowed to go to the Assyrians (Mee 1998, 143).

In view of the ever-increasing evidence for substantial Mycenaean contact with the southern part of the west coast of Anatolia (5.7.9) it does not seem improbable that it was part of Ahhiyawa, a Mycenaean kingdom even if we are uncertain of the location and extent of this kingdom. The archaeological evidence for the contact and acculturation is clear. If Ahhiyawa is not the Mycenaean heartland itself, but either all areas held under the sway of a Mycenaean fleet, perhaps controlled by a single centre like Mycenae as Mee suggests (1998, 143), or the Lower Interface (Mountjoy 1999, 51,

fig. 7, cf. Gates 1995 for an alternative, more northerly location) including Miletus, Rhodes and most of the Dodecanese there is a striking match between its importance as an opponent of the Hittites and the extent of Mycenaean influence in this region.

The picture presented by the evidence from Anatolia so far - the establishment of ports of trade at strategic points (Miletus, Selçuk and Clazomenae to name a few, 4.2.5) where their ships could find safe harbour and where they could have some expectation of welcome is essential for control over the entire Aegean sea, whether by force or agreement – is consistent with a theory such as this. The Hittite texts suggest a similar picture of Ahhiyawan/Mycenaean overlordship, but there is plenty of evidence for other local groups who sided with the Hittites (Bryce 1989, 307).

While it seems that the Hittite empire had a political, cultural and commercial orientation to the south east, to Syria and Mesopotamia, and little to interest them economically in the west coast of Anatolia, the threat of the Mycenaean presence there and the possibility of forming alliances ensured at least their interest for strategic purposes. It is not certain what drew Mycenaean interest in the area since the mineral wealth was distant and under Hittite control and there may have been for a time at least a trade embargo against the Mycenaeans within the Hittite empire (Cline 1991). However, references in the Linear B tablets at Pylos suggest the possibility that western Anatolia was a region from which they 'recruited' slaves, particularly women, which may well have been a by product of military advances in the area (Ventris & Chadwick 1973, 155 and esp. 410).

Material evidence of the influence of the Hittite empire on the west coast is exceptionally scarce (only a few Hittite pottery sherds have been reported from any site in the region). An interesting exception is provided by a small fragment of Mycenaean krater, which probably dates to LH IIIC. Beneath the banded rim is a triangular motif with protruding horns (Fig 5.77a). Parallels for this come from the iconography of Hittite religion whose gods were customarily depicted wearing horned crowns (Fig 5.77b&c). The number of pairs of horns and bisected ovals on these reflects the rank of the god. Thus Fig 5.77b shows the Hittite mountain gods with three pairs of horns,

while a relief from the minor chamber of Yazılıkaya (Fig 5.77c) depicts a scene with a number of different deities who are clearly ranked according to size and complexity of their crowns. The Weather god of Heaven, the supreme deity, for example has five pairs of horns on his crown.

There is no question that this fragment of pottery is depicting the crown of another deity (Niemeier 1998a) and serves as a timely reminder that the local potters at Miletus, for all that this settlement is strongly Mycenaean in character, were influenced from the east as well, an influence that seems to have resulted in a unique hybrid style that in turn was adopted by Mycenaean potters in Rhodes and other islands of the Dodecanese (5.6.8).

3.8.7 Overview of developments in western Anatolia during the period from 1800-1100 BC

As already mentioned, there is good evidence to suggest that western Anatolia had reached a high stage of development and social organisation by the beginning of the Late Bronze Age, at least at some major sites. Only after this did Mycenaean (as opposed to Minoan) contact and influence make their appearance. Unfortunately the current state of excavation and reporting does not allow any conclusions as to the level of development in the majority of the sites in the area or their homogeneity or diversity. Such changes as can be detected after this seem to relate more to the increasing role of Mycenaean influence – both cultural and political - rather than separate developments, at least in the southern part of the region.

During the Late Bronze Age the Hittite political control reached as far as the west coast though it is obvious that some communities rebelled against this domination under the instigation of the Ahhiyawan king. This was presumably a Mycenaean ruler though whether the seat of his power was in the Aegean or on the coast of Anatolia remains a question of debate. There is a close correspondence between the archaeological and historical records (even if their chronology is not yet absolute), which suggests an

intriguing match between the area where the Ahhiyawan king had greatest influence and the region in which the evidence for Mycenaean influence is at its strongest (5.6.9).

3.9 THE MYCENAEAN HEARTLAND

This brief survey focuses on the changes in Mycenaean civilization which may have resulted in increasing influence in trade and possible political activity outside the southern Aegean as the civilization developed over the 500 year span from c.1600 BC to 1050 BC. It cannot be treated as a single entity but may be divided three broad periods (Wardle & Wardle 1997, 5). These are the **Early Mycenaean** period (16th-15th century BC), the **Palatial** period (14th-13th century BC) and the **Late Mycenaean** period (12th-11th century BC). These correspond to Dickinson's second, third and post-palatial for the Aegean as a whole (1996, 12-17; figure 1.2). The principal events are set out in Table 3.4 below and the general characteristics of each period are discussed before looking in more detail at those aspects of the civilisation relevant to this study.

3.9.1 The Early Mycenaean Period

The origins of Mycenaean civilisation are much debated and the exact advent of Greek speaking peoples in Greece is uncertain. It seems that they descend from the inhabitants of southern Greece during the Middle Helladic Period (2000-1600 BC) as many of their customs and practices, including tumulus burial, derive from that period (Dickinson 1979). Their civilisation was developing at the same time as the Minoans began trading more intensively with their neighbours in the Aegean, the period of so-called Minoan thalassocracy. The archaeological record shows an extensive trade in Minoan pottery and other goods around the Aegean and eastern Mediterranean particularly on the islands of Kythera, Melos, Aegina, Kea and Thera. Some sites have been interpreted as actual colonies (Branigan 1981, 31), including Miletus, as already noted.

On the mainland changes which began to occur around 1600 BC are marked by the advent of burials in the Grave Circles at Mycenae. The wealth of these burials, with over 14 kg of sheet gold in Grave Circle A alone, reflects a society which was so wealthy that goods of great value and variety were effectively withdrawn from circulation by their deposition in graves. At this time however, the Mycenaean culture was still represented by a series of

small uncentralised communities that extended around the coasts of the Peloponnese and the southern mainland. As it began to flourish and spread, the shaft graves and tumuli went out of fashion and were replaced by large and elaborate tholoi, circular corbel vaulted chambers with a long entrance passage (dromos). These clearly demonstrate the desire of leading members of the community to display their status and emulate their peers within the community or beyond it. Simpler chamber tombs cut into rock, were used for multiple burials perhaps by the wealthier members of the society. The latter form of burial, often regarded as the hallmark of Mycenaean civilisation, continued until the end of the Mycenaean period. Trade links already reflect direct or indirect contact with Egypt (ivory, ostrich egg etc.) and the Baltic (amber).

3.9.2 Palatial Mycenaean Period

From around 1450 BC the Mycenaeans rose to supremacy in the Aegean. By the late 14th or early 13th century centralised palace systems were fully developed which survived until c.1200 BC. Parts of Mycenae and Tiryns, the Athenian acropolis, Gla and Midea were fortified with massive Cyclopean walling. This suggests that the ruling elite now used the resources under their control for public statements of the wealth and power of the community as a whole, rather than for personal burial monuments. Construction works also included roads, bridges and hydraulic engineering.

Pylos, in its last phase an undefended palace centre, has yielded a massive archive of Linear B documents that provides invaluable information on aspects of the Mycenaean administrative system. Similar records were kept in Mycenae, Thebes and Tiryns. These clearly demonstrate that the palaces acted as central places for the collection, storage and redistribution (whether social or commercial) of a wide variety of commodities.

The long-term result of this central organisation was the standardisation of many aspects of their culture, pottery for example was at its most uniform during this period, perhaps as a result of stability (French, E.B., 1985, 296) and 'mass production'. The palatial centres were fully involved in trade throughout the Mediterranean from Egypt to the south, to

Sardinia and perhaps even Spain to the west, importing raw materials such as ivory and other luxury materials and exporting perfumes, oil, pottery and even cloth. The principal 'engine' which drove this trade is likely to have been the almost insatiable demand for bronze in the palatial centres. The local resources of copper at Lavrion were insufficient to supply this demand and large quantities were obtained from Cyprus.

3.9.3 Late Mycenaean Period

Around 1200 BC the palaces were destroyed and the disintegration of the palatial economy saw a fragmentation of society into regional groups with some evidence of shifts in the principal centres of population. Regional fashions in pottery and burial practice, already detectable in the 13th century (Sherratt 1982), become more marked and there is a considerable drop in the production of prestige items. There is some evidence to suggest a movement of population to peripheral areas, such as Cyprus. Economic recovery occurred to some extent but was short-lived so that by the middle of the 11th century BC there was little left to reflect the brilliance of Mycenaean civilisation, although trade during this period seems to have continued to a limited extent.

TABLE 3.4 THE MYCENAEAN WORLD – PRINCIPAL EVENTS AND SITES

Date BC		Principal events	Principal sites and discoveries	
2000		Middle Bronze Age		
	1650	Tumuli	Grave Circle B	
	1600	Mycenaean Pottery	Grave Circle A	Thera Eruption
		Shaft Graves		
LATE	1500	EARLY Chamber Tombs		
		Tholoi	Vapheio	
	1450			
	1425		Dendra Armour	
BRONZE AGE	1400	Early palaces	Menelaion	
		PALATIAL Wall paintings	Tiryns, Thebes	
	1375			
	1350		Treasury of Atreus?	Tell el-Armana
	1316	Linear B-	Kas Wreck	
	1300	Later Palaces	Assiros Granary	
	1250			
		Cyclopean walling	Copais drained?	
			Gla built	
			Mycenae cult centre	
		Trojan War?		
		Linear B (most)		
			Gelidonya wreck	
1200		Palaces destroyed		
		LATE		
1150				
1100				
1050				

4. PROCESS: ROUTES AND CHARACTER OF TRADE AND CONTACT IN THE MEDITERRANEAN

Of the three aspects of acculturation set out in Chapter 2, it is an understanding of the *process* by which both commercial and non-commercial maritime trade brought new goods, technologies and ideas to peripheral areas which is an essential prerequisite to assessing the *product* in each region.

In the Mediterranean area seafaring (4.1) was the natural mode of contact between the different regions and their cultures described in Chapter 3. Patterns of winds and currents, as well as the relative positions of each region, determine the probable routes for the initial stages of trade between the Mycenaean heartland and its neighbours, even though the subsequent trade may, in most cases, have been overland (4.2). Evidence from Egypt and the Near East as well as from the Linear B archives suggests that much of this trade should have had a 'commercial' basis (4.3). Although a relatively small number of prestige goods may have arrived at their destination through non-commercial forms of trade such as gift exchange (4.4), it is improbable that these exchanges were separate. Changes in the frequency and volume of trade as well as comparisons between the different regions help to highlight those areas where the impact of Mycenaean trade was most marked and the periods when this occurred (4.5).

4.1 SEAFARING

From the beginning of the 16th Century BC, pottery and other Aegean artefacts began to reach distant parts of the Mediterranean, such as Lipari in the west or Egypt in the east. In parallel with the increasing Mycenaean domination of the Aegean, Mycenaean pottery reached even more distant parts, such as Sardinia and Spain. The increasing quantities of finds in each successive period clearly indicate that ships sailed the Mediterranean with progressively greater frequency that only lessened after the collapse of the Mycenaean palatial centres around 1200 BC. These facts are undisputed, but there remains much debate over who controlled the shipping and the routes taken. As argued in Chapter 5 it seems probable that the Mycenaeans themselves controlled much of this shipping at least from the LH IIB period.

4.1.1 Ships and Shipping

Evidence for seafaring becomes substantial from the Early Bronze Age (Broodbank 2000, 92-106).[1] Boat models have been found in a variety of contexts from the early Neolithic, fashioned out of an assortment of materials from clay to lead. Some of the earliest have been found at Mochlos on Crete, dating to 2400-2200 BC (Spathari 1995, 30 for illustrations). Examples from the 13th century BC have been found at Mycenae, Asini, Tanagra and Phylakopi (Basch 1987, 77-79). Linear B tablets from Pylos mention shipbuilding as a separate trade: 'The shipbuilders (*na-u-do-mo*) are excused payment.' (PY189=Na65, Ventris & Chadwick 1973, 298). The tablets also mention contingents of rowers and include a possible sketch of a Mycenaean ship (Palaima 1991). Ships on decorated pottery are also known, as on the LH IIIB stirrup jar from Enkomi (Morrison & Williams 1968, pl.1c) and on a LH IIIC stirrup jar from Asine.

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[1] See also Spathari 1995 for a discussion of ships through the ages which is accompanied by superb illustrations of most of the relevant objects and wall paintings. Also McGrail 1983; 1984; 1991.

More recently a fragment of pottery with a possible boat was identified at Kastanas (Jung, *pers. comm.*), though it is almost certainly Geometric (Wardle, D, *pers. comm.*). A clay sarcophagus from Gazi in Crete (1200-1150 BC) with a crude representation of a ship which seems to be equipped with a sail (Alexiou 1972, 87, fig.1; Basch 1987, 145-146, fig.303-306).

The discovery of the miniature wall paintings of Akrotiri however, has made a substantial contribution to understanding the nature of seafaring vessels and thus the skills that must have been required to sail them. The wall paintings from the upper room in the West House depict a number of vessels apparently sailing between four cities. The reason for this voyage is not clear and it has variously been interpreted as an annual marine festival, a military display/regatta, a naval expedition or a diplomatic voyage (Doumas 1992, 49; Marinatos 1974; Morgan 1983, 99, 1988, 165; Sakellariou, A., 1980, 150-151; Warren 1979). More recent studies have also recognised elements within the painting that reappear in Homer (Axioti-Sali 1992; Morris 1989).

The depictions on the wall paintings indicate a vessel that at first sight appears narrow, unwieldy and poorly provided with shelter, a vessel which seems unlikely to have been capable of crossing the distances necessary to reach the next island, let alone Italy. A closer examination of its details, however, reveals interesting features that imply a substantial knowledge of seafaring.

The majority of the ships on the Akrotiri wall paintings have long, shallow hulls with curved bows, rams and a mast set just forward of centre. This position of the mast allows for greater manoeuvrability than the large sails of the contemporary Egyptian merchantmen (Georgiou 1993, 360). The length of Bronze Age ships has been estimated at between 15 and 30m (Broodbank 2000, 97-102), with a shallow draft of around a metre (Casson 1971, 34-35; McGeehan Liritzis 1988, 248-250), which is proportionally in keeping with the ships on the wall paintings at Akrotiri. The rigging on the ships is depicted with an accuracy that can only have come from actual knowledge. One of the ships has been identified as a cargo ship on the basis of its different construction. Fig 4.1 is a reconstruction of this ship, restored without the Ikria

It is entirely plausible to suppose that these frescoes, with the one possible exception, represent warships, which require a greater degree of flexibility of manoeuvre in battle situations. Trading ships are of necessity broader and deeper hulled to allow the storage of cargo, as the Kaş ship suggests (Bass 1986, 1987, 1990). It has been calculated that such a ship could only have been capable of sailing at 5-6 miles per hour (Marinatos 1963, 163; Georgiou 1993, 361). At this speed the distances that needed to be covered were daunting: the Otranto strait between Corfu and Italy, for example, would have needed some 20 hours to cross highly unpredictable waters.

Sailing in the Mediterranean is notoriously difficult, as any sailor from the region has no hesitation in stating. Travel in the Bronze Age was largely dependent on the winds and on the currents, which flow roughly in an anticlockwise direction round the Mediterranean for the most part of the year (Heikell 1992, 23; Agouridis 1997, 3, Fig.1). The winds, particularly from late Spring until Autumn, blow predominantly from the north west. Sailing to the central Mediterranean from Greece during these months, against the wind, is time consuming. The Roman grainship Isis, for example, with a 1200 ton burden, sailing from Alexandria to Ostia, Rome's harbour, that is almost exactly due NW from Egypt, took 70 days to reach Piraeus alone. The journey in the opposite direction with strong tail wind required only 20-25 days (Lucian, *Navigium* 9, 438-439).

Localised currents and winds would undoubtedly have been utilised to aid travel, but these were similarly unpredictable and could push the less than fully vigilant skipper into the shore or trap a ship in a bay for days at a time. Whilst a warship is supplied with the manpower to row out of such situations, it is unlikely that the heavier and more unwieldy cargo ship would have had sufficient crew to do so.

In Classical times, for these reasons, sailing was generally restricted to the summer months, when fair weather might be expected to provide the optimum sailing conditions. Hesiod states that the only safe time for voyages was between July and September, as the winds were at their most reliable during these months (*Works and Days* 663-665). In the Roman period the famous wreck of St Paul's ship off the coast of

Malta occurred because the captain chose to sail, against advice, from the shores of Crete at the very end of the summer sailing season (*Acts of the Apostles* cap. 27). Studies of meteorological data collected over the last 30 years for the area around Sicily have confirmed that the summer months are the best for sailing even for a relatively short haul trip such as to the Aeolian islands (Castagnino Berlinghieri 2003, 21).

The stories in the *Odyssey*, where Odysseus is driven off course by the weather, such as in Book X when Ithaca was just in sight, reflect real problems of sailing in the Mediterranean. Homeric parallels, though mythical in detail, are likely to reflect the actual sailing conditions of the 8th/7th century BC which would have been familiar to his audience and equally the exploitation of the same waters in similar conditions 500 years earlier. The clashing rocks (*Odyssey* xii) might be imaginary, but their identification as the straits of Messina between Italy and Sicily, albeit tentative, reminds us of the real dangers caused by the treacherous currents there, as the many shipwrecks of all ages along that coastline attest (Marazzi 1988, 1-22). Any crossing during the Bronze Age to Italy and on to Sicily and Sardinia was, under such conditions, a great achievement of seamanship and navigation.

4.1.2 Navigable routes

How then could a Mycenaean sailor, given the limitations of his seafaring vessel, have reached his chosen destination, whether in the central Mediterranean or in the Aegean? There are two options open to a sailor relying largely on sail power, coasting along the shoreline or sailing directly across the open seas (McGrail 1991, 87-88 also outlines these options for a sailor, though he bases his discussion on crossing the English channel and he notes that a ship's performance and the skill of the mariner's seamanship often dictated the route; also Agouridis 1997 for similar choices between the Cyclades and Crete). Each option is more appropriate in different sets of circumstances and each is beset with a range of problems. In coasting, there is the risk of being driven by localised currents onto hidden rocks or forced onto shore by sudden winds, but also the advantage of sheltering in the calmer waters near the land. Venturing out into the open

sea, with few navigational aids, carries the risk of being blown far off course, while the added necessity of shipping enough provisions and water for a trip of unknown length tells its own tale.

Sardinia, Sicily and Peninsular Italy

When *coasting*, the route that must be taken to reach these parts of the western Mediterranean is self-evident (Fig 4.5). Taking Cape Araxos (Teichos Dymaion - Hope Simpson & Dickinson 1979, 195-6; Hope Simpson 1981, 155; Papadopoulos 1979, 24), with its Cyclopean walled citadel on the north coast of the Peloponnese as a notional starting point, a ship could have sailed, much as today, up the western coast of Greece to Corfu, aided by the Sirocco blowing from the south-east. From this point it is possible to sail across to the coast of Otranto, a trip of some 20 hours as already mentioned. In Roman times travel from Italy to northern Greece and Asia Minor along the Via Appia and the Via Egnatia necessitated a direct crossing from Brundisium (Brindisi) to Dyrrachion (Durrës in Albania), suggesting that this was the best route to take.

The local currents[4] (Agouridis 1997, 5-6, Figure 2 & 3) and winds would then allow a ship to coast around or across the Gulf of Taranto southwest past the southern tip of Italy. The lack of Mycenaean material south of Broglio di Trebisacce, with the exception of Capo Piccolo, which has recently provided evidence of Mycenaean imports dating to LH I and LH II (Belardelli 1994a, 503), as well as the dearth of suitable harbours, would suggest that this necessitated a 'long haul' trip directly to their next safe harbour at Thapsos on Sicily. Sailing close to the shore of Calabria is extremely treacherous as two main currents converge along this coastline and the quantity of shipwrecks in this area attests to the danger. It is very likely therefore that this open sea trip was the preferred way to reach Sicily and Sardinia.

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[4] Research has suggested that the climatic variations have not occurred at a significant rate to cause modifications in the flow of currents so that the conditions today are much the same as in the Bronze Age (Flemming 1996, 23-52).

Open sea sailing directly from Greece has often been dismissed as impossible on the grounds that the distances traversed, without hope of anchorage, were too great (Fig 4.6). Corfu direct to Broglio di Trebisacce in a laden cargo ship would take approximately 60 hours. Certainly it would require a ship that was well provided with shelter, food and water, but this option, provided the weather was reasonable and the wind favourable, is considerably quicker than winding in and out of the coastline. Indeed it has been estimated that a trip from Pireaus to the Straits of Messina utilising merely the local currents and therefore the 'coasting' style of sailing with an average speed of 1-2 knots would take 500 hours – approximately 22 days of sailing (Castagnino Berlinghieri 2003, 23), while utilising the open sea sailing methods, provided the weather is favourable, would reduce this trip time by almost a third.

Returning to Mainland Greece from the central Mediterranean a sailor faces a similar choice of routes. Three possible options can be identified. The first is to return exactly the same way coasting past the southern tip of Italian peninsula to the Gulf of Taranto and back across the Otranto strait. This requires sailing against the main flow of the current and frequent stops, preferably a day's sail apart, would be beneficial. The lack of harbours or even convenient sheltered bays along the coast until Broglio di Trebisacce remains a problem for this route. The other two alternatives involve open sea sailing either south east with the aid of the wind until the coast of Greece is reached or south to the north coast of Africa (Fig 4.7) and then circling back.

Macedonia and Anatolia

The proximity of islands in the Aegean Sea immediately suggests that here coasting or island hopping, would be the preferred means of travel in the Bronze Age. Experience on a small wooden sailing vessel, the Zeus III, in the autumn of 1998, not dissimilar in size to the Kaş and Cape Gelidonya ships, highlighted two aspects of sailing in the region. Firstly the ease with which the next island or islands could be seen made navigation simple in an age when other aids were few. Secondly, sailing in the lee of the

islands proved infinitely more comfortable for the passengers than sailing in open seas where even in the calmest weather the boat rocked unpredictably. However this method would not be without its difficulties as the very closeness of landfall in the Cyclades makes sailing in the Aegean more perilous. The worst place to be in any storm is near land (Georgiou 1993, 361) and even today the powerful inter-island ferries are frequently cancelled as a result of adverse weather conditions.[5]

Was this coast to coast, island to island method really the only viable option for getting to or from the coast of Anatolia? Evidence from the *Odyssey*, despite its later date, suggests an alternative. Menelaus, Nestor and Diomedes on their return from Troy paused at Lesbos in order to discuss the various merits of a direct passage across the Aegean to the southern end of the island of Euboea, or the much more time consuming inter-island route, via Chios, the Sporades and the Cyclades (*Odyssey* III, 170-175). Their decision to take to the open seas by sailing across to Karystos, a journey of around 20 hours, suggests that this was a preferred option providing the winds were favourable.

There is no reason to suppose that this choice was not the same as would have faced Mycenaean sailors earlier as sailing conditions can have changed very little. Open sea sailing across to Troy or up to Macedonia was clearly a cost-effective option in terms of time spent on the sea. The shorter the journey, the less was the risk of shipwreck or even piracy. Egyptian products were already reaching the Mesara and other parts of Crete as early as the third millennium (Warren & Hankey 1989, 125-127), a journey that was best accomplished over open seas.

It seems likely therefore that they would have used a combination of routes according to the time of year, the weather, local currents and the type of ship undertaking the voyage.

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[5] Even today the dangers of sailing in the Aegean cannot be forgotten after a series of shipping disasters in September 2000, culminating in the terrible tragedy of the Express Samina, which sank not far from the shores of Paros with great loss of life (http://www.hri.org/news/greek/eraen/2000/00-09-27.eraen.html#01). Shortly afterwards the Zeus III ran into trouble at night and sank to the sea bed just off the coast of Naxos in just 20 minutes (http://www.hri.org/news/greek/ana/2000/00-10-04.ana.html#03), a harsh reminder of the realities of seafaring, particularly vivid to me since I was expecting to travel on both on these dates.

The coast to coast, headland to headland nature of 'coasting' is more prudent for warships, which had the manpower to row the boat out of difficulties but lacked the space for provisions. Trading ships, however, being heavier, unwieldy vessels with smaller crews, were better suited to open sea sailing (Severin 1987, 237).

4.1.3 Navigational aids

Sailors attempting any of these routes would have had limited navigational aids. The earliest surviving navigational chart, compiled by Skylax Karyandeus the younger, dates to the mid 4th century BC and while it is possible there may have been something similar during the Mycenaean period no evidence has been found (*Catalogue Hellenic Maritime Museum*, Piraeus 1984, 99). During the day, in the Aegean Sea at least, it would have been possible to see one or more islands on the horizon at any given moment (Agouridis 1997, 15-16). Particularly in the summer, much can be obscured by heat haze, but in early morning and early evening the distant islands can be seen on the horizon. Mount Etna, for example, would have served as a beacon and guided ships towards Italy from a fair distance. Once closer to land, the change in colour or clouding of the waters that occurs as the result of alluvial rivers flowing into the sea would have guided a ship directly to coastal plains and safe harbours (McGrail 1991).

At night navigation was possible only with the aid of the stars (McGrail 1983, 316; 1991, 87). By keeping, for example, the Great Bear, a constellation that never sinks below the horizon, on the left of the ship and heading directly for the Pleiades, a continued direction of NNE would be ensured such as would be required for travelling from Thapsos along the southern tip of Italy heading for Broglio di Trebissace, for example. There is also some evidence that time onboard ship could have been computed by the stars (Georgiou 1995, 37). Three night watches are mentioned by Homer (*Odyssey* xii, 312; *Odyssey* xiv, 483; *Il.* x, 251-253) which are timed by the sequence of certain stars. These stars, it has been argued, are the same as the decan stars known from Egyptian tombs as early as the end of the third millennium BC (Locher 1993, 279-284). Etched on the Egyptian coffin lids is a series of columns dividing the year into 10 day intervals – 36 columns representing 360 days of the year in which the star sequences are laid out. These 'star clocks' operate on the basis that 12 decans cover the period from dusk to dawn and one star crosses the celestial north-south meridian line approximately every 40 minutes. It is highly probable that through contact with Egypt Aegean sailors would have learnt to use a similar device.

Similarly the earliest example of the use of a navigational instrument is known from Middle Kingdom Egypt, from c.2000 BC. A sounding lead and line is depicted in use on a boat from the tomb of Meket-re (Bass 1974, 29, fig. 18). The process of using this as a means of judging the depth of waters is described some 1400 years later by Herodotus (2.5.2) and its use earlier in the Aegean is still uncertain, though surely the long-established trade routes between Greece and Egypt in the Bronze Age must have ensured the spread of the practice.

4.1.4 A Mediterranean Trade Route

The precise route or routes by which merchants sailed around the Mediterranean during the Bronze Age is impossible to discover with certainty, but on the basis of the distribution of imported items and with recourse to modern experience, it has been possible to suggest an approximate 'circular' route that runs anticlockwise around the Mediterranean basin (Kemp & Merrillees 1980, 268-267; Knapp 1991, 40; Younger & Rehak 1998, 341).

Thus a ship might in theory sail west to Italy and Sicily, then south to the north coast of Africa. At this point sailors would be faced with a choice, to cross over open seas directly to Crete and then the islands of the Aegean or to 'hop' along the coast to Egypt, Syria-Palestine, southern Anatolia, Cyprus and so on (Fig 4.7). The evidence of the Ulu Burun and Cape Gelidonya shipwrecks seems to confirm the route of travel along the south coast of Anatolia. On the basis of their cargoes of Cypriot copper and pottery, among other items, both ships are thought to have been sailing westwards, which would indicate that this itinerary was already in use.

Traders could start at any point in this route and indeed need not necessarily complete a full circuit, though the possibility cannot be excluded. Indeed it seems more likely that there were two circular routes in operation (Fig 4.7). The western circle encompassed Italy, Sardinia and other destinations in the western Mediterranean returning via the North African coast and Crete. The eastern one passed Egypt, Syria-Palestine, Cyprus and Anatolia.

Both of these routes would pass close by Crete for practical reasons, apart from the importance of the island as a focus of trade in the 18th-15th centuries BC. It is possible to sail north to Crete as the south wind from Libya blows towards Crete in the summer months and it is well known from Archaic and Classical periods that boats could sail directly from Egypt to Crete (Watrous 1992, 177-178; Cline 1994, 91). Cline (1991, 245-246) points to finds of Egyptian storage amphorae at Kommos on the south coast of

Crete from LM I onwards as confirmation of this route from at least the 16th century in contrast to the limited number of Egyptian finds on Cyprus.

Tim Severin's experience on the 'Ulysses' voyage emphasises the difficulty of sailing round Crete (Severin 1987). Like his, any ship approaching from the south would have to turn westwards and sail along the coast. Progress would have been slow but sure until passing the north west corner of Crete. Here the ship faced the prospect of an open crossing to Cape Malea on the mainland with the danger, if a strong north wind arose, of being blown back to the north coast of Africa. This almost befell the modern Argo as Severin explains:

> *'I knew we were in trouble after we rounded Elafonisos, Deer Island, just beyond Cape Krio. Argo began to fall thunderously off each wave crest as we lurched past the reef at Elafonisos that is an ominous graveyard of ships. The sea was too much for her and the galley was almost unmanageable in the breaking waters... There was nowhere to cast anchor in that bleak and windy spot...'* (Severin 1987, 110)

This experience, which lasted for six trying hours, brought to light the necessity for more than one anchor, simply to prevent a ship from crashing onto the shore. The twelve anchors found at the Ulu Burun wreck site therefore, were most probably needed to prevent the heavily laden boat from drifting in similar situations (Bass 1986; Bass & Pulak 1989). The only place to shelter, and wait for favourable winds for the crossing to the mainland, he goes on to explain, is the island of Gramvousa (Severin 1987, 111) and it does not seem unreasonable to suppose that Mycenaean sailors did the same.

In practice the routes chosen would balance the nature of the cargo and the need for raw materials from a particular area with the exigencies of the season, weather and currents.

4.1.5 Bronze Age Harbours

Since no actual harbour installations[6] dating to the Bronze Age have been identified in mainland Greece or in the central Mediterranean, it is worth considering the practicalities of unloading a cargo ship. For a settlement to be termed a port it logically must be located near to the sea or some other navigable stretch of water and offer shelter for ships either in the form of a bay, lagoon or sandy beach. McGrail (1987, 267-273) suggests that no more than a mooring post or stone would be needed in such a bay to secure a ship, though this surely could only apply to an unladen vessels.

While warships, with the manpower and lighter burden, could easily be beached, a heavily laden cargo ship would be virtually impossible to drag out of the water. A 13th century BC Akkadian text from Ugarit mentions a merchant ship carrying 2000 *kors* of grain (450 metric tonnes) from the port at Alexandretta, ultimately destined for the Cilician city of Ura. Even taking into consideration that this was a double trip, the ship's load had to be around 225 tons (McCaslin 1980, 101). Unloading a cargo such as this, or the Ulu Burun wreck with over 6 tons of oxhide ingots alone (4.3.1), would require some form of quay, most probably wooden, or ferrying to the shore in smaller boats.

Once again the miniature ship fresco from Santorini is of paramount importance. In Fig 4.4 Town B is drawn without the people to clarify the nature of the structures. To reach the town you would pass round a rocky headland to a small shallow harbour, suitable for beaching small boats. Round the next headland is a deep harbour, with medium sized boats, perhaps for the ferrying to and fro of cargo from bigger ships. The fortified town itself is built directly onto the sea and provided with a quay, which could have been used for the unloading of boats and is equipped with a sea gate, (over which, in the place of the usual heraldic lion, is an oxhide ingot). The tripartite building overlooking the harbours could be a shrine or fort, but the structure below is enigmatic. Various

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[6] Though much work had been done on identifying where these may have existed – e.g. Shaw 1990; Rothaus *et al.* 2003.

suggestions have included a dovecote, a rock cut cemetery, a military camp or warehouses (Marinatos *Thera VI,* 43; Morgan 1988, 85).

None of the suggestions are particularly convincing, although its location near to the harbours would fit the suggestion of warehouses. It is interesting that the artist has chosen to illustrate it in a manner that could be read as a maritime map, in which the identification of the town, although unknown to us, would have been possible from the elements depicted. The provision of two harbours is also interesting as it addresses some of the questions concerning the lack of harbour installations in the archaeological record. It is also interesting to note that a number of the possible ports of trade identified later in this chapter are equipped with two harbours, such as the site of Porto Perone – Saturo in the bay of Taranto. Recent geoarchaeological work in the area of Corinth has attempted to address this deficiency and two prehistoric harbour sites have now been identified at Vayia and Korphos which in the Bronze Age were good sheltered harbours with good visibility to the Saronic Islands and into Attica (Rothaus *et al.* 2003, 43). In neither case however, was any trace of permanent installations found.

Thus the combination of marine technology and experience of favourable winds and current and the location of islands all helped to maintain trade on a regular basis, although the frequency of this trade is difficult to ascertain (though some attempt is made in 4.2)

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4.2 INITIAL AND SUBSEQUENT PATTERNS OF TRADE

NB. Bibliography for sites mentioned in the text can be found in Appendix 1.

This section attempts to identify logical routes for *initial* and *subsequent* patterns of trade (as defined in Chapter 2.2) for each of the areas under discussion based on the geographical location of findspots of the imported Mycenaean pottery and artefacts, bearing in mind that the majority of sites located by excavation and survey are coastal. The physical geography of each area has not changed significantly during the past three millennia except for minor fluctuations in sea level[7] and localized alluviation (3.1). In some regions, however, particularly in the river valleys flowing into the sea along the west coast of Anatolia, this can be extensive. These factors have been taken into consideration when attempting to identify the logical routes of trade for this area (4.2.6).

The location of the possible ports of trade whose concept was proposed in Chapter 2 (2.4.4), is at this stage based on the suitability of its position to serve the area, such as close to a major river estuary or prominent headland, combined with the presence of Mycenaean artefacts. It does not seek to justify or confirm their function, a subject which is examined in more depth in Chapters 5 and 6. More detail on the pottery and other artefacts from each district can be found in section 4.5.

4.2.1 Sardinia

An examination of the geology and geography of Sardinia has already highlighted the unsuitability of the eastern coast for access from the sea (3.1) and, as one might expect, the findspots of Mycenaean items for this area are somewhat limited. A small harbour at the mouth of the navigable Cedrino river in the Orosei region could have offered an

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[7] Where the information on sea level changes is available it is referenced in the text, but in general the change in sea level has not exceeded 2m as at Troy in Anatolia (Kayan 1995). See also Lambrianides & Spencer 1999, 457-466; Lambeck 1996, 588-611 on sea level changes in Aegean Greece; Van Andel 1989.

entrance into the inland area. Some Mycenaean material is reported from here, but much of it was as a result of chance discoveries, many without a certain context.

One site, in the south of the island on a large natural harbour, stands out prominently as a suitable location for a port of trade, namely the nuraghic site of Antigori Sarroch. This would seem to be a logical starting point for contact with the local population. The large quantities of Mycenaean pottery dating from LH IIIA through to LH IIIC recovered from the excavations there confirm that this settlement was an important focus of trade for the area. The manufacture here of Mycenaean in local fabrics also adds to the picture. The nearby river Mannu, navigable for most of its lower course, would most probably have been the main route inland, since the sites of Assemini and Cagliari close to its estuary are relatively rich in Mycenaean artefacts.

On the west coast the alluvial plain created by the river Tirso provides another suitable harbour but the paucity of the material from this region makes its role in trade somewhat inconclusive. The site of Tharros located on a headland in the north of the bay of Oristano may well already have been an important port of trade in the Mycenaean period. Here more than 10 fragments of oxhide ingots and quantities of Mycenaean pottery were discovered, the latter of uncertain date, but suggested to be as early as LH IIIA.

Fig 4.8 below plots many of the major findspots of Mycenaean artefacts on the island and postulates possible trade routes between each area working on the primary hypothesis that Antigori and Tharros may well have been ports of trade to which vessels from the Aegean sailed.

4.2.2 Sicily and the Aeolian Islands

Two main sites of initial contact can be postulated for Sicily, both located at the estuary of rivers and situated within the territory of large, fertile alluvial plains – Thapsos and Agrigento.

On the east coast of Sicily, Thapsos, located on a small peninsula south of Mount Etna, is provided with a large safe natural harbour. The quantities of Mycenaean pottery and other artefacts provide strong confirmation that this prime location was actually, as well as potentially, a port of trade, an hypothesis strengthened by the presence of large rectangular structures of stone suspected to be warehouses. Thapsos is as yet the only site in Sicily which seems to have continuous contact from as early as LH IIIA.

The locations of sites inland from Thapsos in the south east of Sicily suggest a pattern of trade routes along major rivers and their tributaries. The cluster of sites around the region of Thapsos and following the path of the river Anapo reinforce its position as a primary point of contact. Another prime example is the River Caltagirone along which are spread out the sites of Valsavoia, Cava Cana Barbara, Caltagirone and Serra Orlando, although as yet no major settlement has been found at the mouth of this river that could operate as a port of trade.

Contact is not however, restricted to the eastern coast of Sicily. Agrigento on the south coast is likely to have operated in much the same way as Thapsos, although, so far, only pottery dating to LH IIIA has been recovered. Excavations and survey work in this area are still in progress. Most of the sites have only been identified recently (since the late eighties). It seems likely that a pattern of inland trade from an initial point of contact still holds with sites such as Cannatello and Sant'Angelo Muxaro situated further inland along the course of the river Platani.

The Aeolian Islands are the sole area in the central Mediterranean to display continuity in contact from the Middle Helladic through to LH IIIC. While each island has its own port, Lipari seems to have dominated the area as the 'international' port of trade. Initially this was probably as a result of exploitation of the rich sources of obsidian in the area but its situation as the closest safe harbour after navigating the treacherous waters of the Strait of Messina may have contributed to its popularity. While there is nothing to exclude an Aegean vessel calling in at each island separately it seems more likely that goods spread in this area via the local trade network which was already

flourishing (3.4) and made Lipari the initial point of contact.

Fig 4.9 shows the findspots of Mycenaean pottery and artefacts, with no chronological divisions, and the postulated trade routes as outlined above.

4.2.3 The southern Italian Peninsula

Three main areas of contact have been identified in the South Italian Peninsula. These are the Gulf of Taranto, the Adriatic coast (between Brindisi and the Gargano promontory) and the southern Tyrhennian coast. Mycenaean material has been found at many sites in each of these areas. Unlike Sardinia and Sicily, the majority of the known sites are situated along the coast, which may well reflect the accidental discovery of sites due to intensified economic development of the coastal strip in recent years rather than the full pattern. This makes the identification of any one port of trade to serve each area a little more complicated. The reality of trade in this area is that a ship could stop at any one of the ports along the coastline, particularly in the Gulf of Taranto where 15 sites are located along the coast, and may have conducted trade at any one. It is therefore more realistic to try to identify a possible port of trade for each area on the basis of the amount of imported pottery, as well as the potential of its location.

Despite the quantities of Mycenaean pottery found at many of the sites in the bay of Taranto, one site has seemed to dominate the area since its discovery – Broglio di Trebisacce (although this may be due to the inequality of archaeological recovery). Located near the mouth of the river Siberi on a high plateau which overlooks the plain and long coastline, this site could easily control the coastal passage into the plain of Basilicata. Pottery from this area dates from LH IIIA through to LH IIIC. Significantly it lies directly opposite the southern tip of the Capo Santa Maria di Leuca peninsula, making it a visible destination from across the Gulf of Taranto for ships arriving from Greece. Two other contenders as possible major ports of trade are located close together further to the north of the bay, those of Scoglio del Tonno and Porto Perone in the region of modern Taranto, where a large sheltered lagoon provides a protected harbour.

On the Adriatic coast, as in the Gulf of Taranto, sites are located at regular intervals, possibly the equivalent to a comfortable day's sail. Once again the identification of a single port of trade responsible for the whole area is impossible. The even spread of sites along the coast suggests that it was perfectly possible to call in on each in turn. One possible site, however, where a case could be argued for identification as the dominant port of trade for the region, is Coppa Nevigata. Its location in the foothills of Mount Gargano where two major rivers flow into the Adriatic sea, the Candelero and the Celone, makes it a prime candidate for an initial point of contact for sites further inland, but none, as yet, has been found along either of the river valleys.

In the Bay of Naples, the island of Vivara seems to have acted as a possible port of trade with Mycenaean pottery from as early as LH I, but it seems to fade in significance after LH IIIA. The island's key location off the Tyrrhenian coast makes it a convenient stopping point on the journey up the coast, but as yet only sporadic finds of Mycenaean pottery have been identified further north. (Many sherds such as those reported from as far north as Tuscany, have perhaps been misidentified as Mycenaean - Vagnetti *pers. comm.*). The identification, therefore, of trade routes for this region can only be tentative.

Recent discoveries of Mycenaean in the Po Valley, for example at Fabbrici di Soci, are finally confirming the presence of a long suspected trade route along the Adriatic which is perhaps confirmed by the very recent discovery of Mycenaean sherds at Skrp on the Dalmatian coast (Gaffney *et al.* 2001*)*

Fig 4.10 shows the possible trade routes for the southern peninsula of Italy.

4.2.4 Epirus and Albania

Contact with Epirus must largely have been conducted via maritime routes heading to possible ports of trade at the mouth of three north-south river valleys – the Acheron, the

Louros and the Arachthos, which provide access from the coast to inland regions. The Thyamis river, which flows from the mountain ranges between Epirus and Albania and enters the Adriatic sea just north of Igoumenitsa, is unlikely to have been a preferred route to the sites in northern Epirus. Two steep gorges along its course would have proved difficult and time-consuming to traverse.

The main trade route for this region appears to have started at coastal sites in the Ambracian gulf, with the Louros and the Arachthos rivers providing access to the very inner regions of Epirus. As yet no sites have been discovered even by survey at the mouth of either of these rivers though alluviation on the north side of the gulf has changed the coastline. It is possible however that the site of Skaphidaki may prove in time to be significant as it commands the entrance to the gulf itself. The journey north to Dodona could have been accomplished from the low lying areas of Nikopolis and the Agios Thomas peninsula via the Thesprotiko plain or Louros river valley. Once Dodona had been reached, it was possible to head directly north towards the modern Albanian border through the upland basin of Kalbaki. The material at sites such as Gardiki, Elaphotopos, Kalyvia, Aristi and Mesogephyra is likely to have travelled along this route. An argument for this being a main route into Albania is the presence at Barç of a fragment of pottery decorated with the fringed concentric semicircles (Fig 5.42c) typical of Achaea (5.4.8) which until now is not a motif that is found in Macedonia.

From the harbour at Ephyra, the only possible port of trade for Epirus to date (cf Tartaron 2004, 106 who proposes a trading mission at there), the Acheron river, with its tributaries the Vouvos and the Kokytos, also provides access to sites further inland (Fig. 4.11). The sites of Koumasaki and Agia Eleni have been discovered by survey at the very mouth of the river, but a safe harbour was provided further in at the site of Gephyra. This site, although now 4km from the coast, was once positioned at the mouth of the Acheron river, since the sea extended much further inland in antiquity. It is recorded that hundreds of ships moored there in Classical, Roman and Medieval times (Thucydides I.46; Cassius Dio 50.12.2; Anna Komnena, *Alex.* 4.33). Geological coring of the Acheron river by the Nikopolis project has provided proof of a significantly wider harbour in antiquity (Tartaron & Zachos 1999, 61). A deep boring made some

150m east of the confluence of the Acheron and Kokytos/Vouvos rivers included a layer of sand and marine shells approximately 17.5-18m below the surface (Dakaris 1958, 110). Unfortunately no association could be made with a particular archaeological phase and it is not possible to confirm even the extent of the coastline in the Mycenaean period.

While the routes above have been suggested as the main trade routes in operation during the Mycenaean period, a word of caution must be added. The majority of the Mycenaean material known from Epirus is still to this day made from metal - swords, daggers and spears. These are highly portable objects which may have been carried inland individually rather than as part of a 'consignment' of Mycenaean goods. Despite the rugged terrain of Epirus there are many shepherd paths which cross it from west to east. Even during the occupation in 1942 it is reported that the inhabitants of Thesprotia travelled across the mountains along narrow footpaths to trade their olive oil for cheese with the inhabitants of Pendalophos, near the summit of the pass into Macedonia (Hammond *pers. comm.*), just as today Albanians do not think twice of walking out of Albania across the mountains all the way to Athens[8].

Fig 4.11 shows the possible trade routes for Epirus and Albania.

4.2.5 Macedonia

Material arriving in Macedonia might come by one of two routes, the first overland and the second maritime, as discussed in Chapter 2.3.

The overland route, serving mainly western Macedonia, perhaps started in coastal Thessaly, which was fully Mycenaean by the 14th century (Halstead 1994, 211) with a major port near modern Volos. From the eastern Thessalian plain an easy pass, the Sarandaporos, leads north to the Haliakmon valley, where recent finds of Mycenaean pottery at Aiani and Servia (Fig 5.43, 5.49) show that this was one of the important

centres on this route (Karamitrou-Mendesidi 2000). Other finds of Mycenaean at Kozani and Grevena to the north and Agios Dimitrios on the slopes of Mount Olympus to the north east seem to mark the furthest extent of this route, since the Haliakmon gorge leading to the Veria plain is an obstacle rather than an aid to travel.

The maritime route most probably followed the line of the east coast, perhaps stopping at islands such as Skyros or Skopelos, before branching south of the Thermaic Gulf to target different areas (see Fig 4.12). It is, however, a very inhospitable coast with virtually no harbours from Pelion to Platamonas, as the mountains stretch down to the shore. In practice the maritime route was the most economical both in terms of time and effort, as it depended only on wind direction and currents and avoided the difficulties of passing through the mountain ranges. Mycenaean material has been identified at over 40 sites in central Macedonia, with the majority located in Chalkidiki, around the shore of the Thermaic Gulf, inland in the Langadas basin, and on the low escarpment on either side of the Axios river. To the west of the Axios there was still a large area of open sea and marshland which has been gradually filled in since the Bronze Age as a result of the alluviation of the rivers Loudias, Axios and Haliakmon (Sakellariou, M.B., 1982, 24). No sites with Mycenaean pottery have been identified around the edge of this area.

Torone on the southern tip of the Sithonian peninsula has some of the earliest evidence for Mycenaean, dating to LH I. Its location suggests its suitability as a port of trade. Agios Mamas (now published under the name Olynthos) currently undergoing excavation by a Greek-German team under the directorship of Bernhard Hänsel, has provided evidence of much MH Grey Minyan and Mycenaean pottery from as early as LH IIA (Jung *pers. comm.*). Mende on the Kassandra peninsula has a similar position in the landscape in relation to its hinterland. Late Mycenaean pottery has been identified at this site (Vokotopoulou 2001, 753).

A later temple of Poseidon at Poseidi, about 2-3km away from Mende, located in as visible a position as the temple of Poseidon at Sounion, might suggest that this was a

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[8] 'No wonder the young men walked for a week at night, sleeping during the day to get to Salonika or Athens!...How could anyone stay who had two legs to walk out.' Carver 1999, 81.

landmark looked for by sailors even in earlier periods. Mycenaean pottery from the lowest levels of the cult deposits suggests that the sanctuary may already have been in use from the 12th, if not the 13th century BC. Certainly the number of sites with Mycenaean pottery in the area supports the hypothesis that Mende served as a port of trade.

On the other hand it is conceivable that sites such as Torone, with only a minimal hinterland, were only stopping points *en route* to places further to the East. They may have been used in the same way as the later Venetian castles, which were positioned a day's sail apart. These had fortified harbours which ensured the safe passage of a cargo to its destination, for a small fee or tithe, by providing overnight protection from piracy and a forum for trade (Andrea Nanetti *pers. comm.*).

The Thermaic Gulf, in the area of present-day Thessaloniki, has similarly yielded many sites with Mycenaean finds. Recent work at Toumba Thessaloniki, for instance, has highlighted the importance of this region in the local trade network. The size of the Toumba as well as the quantities of Mycenaean pottery of all dates suggest this as a possible port of trade, though its exact location in relation to the sea in the Bronze Age has been obscured by silting. Routes inland can be postulated with sites such as Assiros and Saratse (Perivolaki) in the Langadas basin as stopping points.

The sites of Kastanas in the flood plain and Vardaroftsa (Axiochori) on the eastern escarpment above the river Axios suggest that this was another major route northwards, though no port of trade has been identified at the river mouth. As already mentioned this area has undergone considerable alluviation (3.1.3) and the position of the river mouth in the Bronze Age has not yet been established. The river however, was certainly navigable as far north as Kastanas and Vardaroftsa and it may be that these settlements operated in a similar way to the coastal ports of trade elsewhere.

A further possible maritime route can be identified leading to the mouth of the river Strymon, though the scarcity of sites with identified Mycenaean pottery in this region makes this a tentative suggestion only. One of the very few, Angista, is the only mound

of central Macedonian type in the Strymon valley, dominating access to the Drama plain. Other contemporary sites in the region are much smaller and presumably subordinate (Grammenos 1975, 193-234, Koukouli-Chrysanthaki *pers. comm.*) Further to the east only a few sherds of Mycenaean have been found in the Nestos valley until the Dardanelles and Troy are reached.

Fig 4.12 shows the possible trade routes for this area.

4.2.6 Anatolia

Material arriving in Anatolia most likely utilised a number of different trade routes. The very size of the landmass comprising Anatolia and its position as a land bridge between east and west all play a role in determining the routes that might have been used. Mycenaean style pottery has now been identified at over 75 sites, mainly located in two areas, the west coast and Cilicia (see Fig 4.17). Ports of trade, as identified in other regions under study, are the most probable focus for the distribution of material in this area.

A number of possible prehistoric ports of trade can be identified along the west coast. Modern maps obscure the situation in the prehistoric period since a considerable amount of change in the coastline has occurred as a result of tectonic movement and alluviation. Higgins, M.D. and Higgins, R., *A Geological Companion to Greece and the Aegean*, 1996, has supplied the basic information on sea level changes and alluviation used in this section. Without information on the geomorphology that can be provided by boring, such as that done at Troy (see below), it is not possible to plot accurately the coastlines in the Mycenaean period. Potentially seismic surveys across the present coastline could identify old river channels in the sediment, in conjunction with systematic coring on transects from the midpoint of the river valleys to the upper end to acquire information on the sedimentological data (Buck *pers. comm.*).

Each of the major river valleys which dominate the western coast - the Karamenderes

(ancient Scamander), the Gediz (ancient Hermos), the Küçük Menderes (ancient Kaistros) and the Büyük Menderes (ancient Maeander), which are relevant to this discussion are illustrated to show both the present day coastline and the hypothetical coastline during the Mycenaean period (Figs 4.13-4.16).

Starting from the north, Troy (Hissarlik) is located at a strategic point not far from the entrance to the Dardanelles and possibly controlled access to them. Sherratt (in Easton *et al.* 103-106) regards this as the port of trade for this area. Indeed material from the site dating from as early as LH IIA (Mee 1978, 146) supports its identification as a trading centre, although it has been suggested that much of the pottery was produced locally even as early as this (Mountjoy 1997b, 259-267). Certainly the area around Troy provides safe anchorage for ships wanting to enter the Dardanelles, but delayed by poor weather. With a NNW-NNE wind blowing, which can occur on average 19 days per month in May and June (Neumann 1991, 94), the number of days by which one might be delayed at the entrance to the Dardanelles is on average 20 (Neumann 1991, 96).[9]

Identifying possible harbour sites for this city has been the work of many scholars and recent work on the geomorphology of the area has enabled a good picture of the coastline from 6000 B.P. until the present to be drawn up (Kayan 1995). Information from 200 boreholes across the Karamenderes plain has suggested that Troy was a coastal site during its earliest phases (Kayan 1995, 216). During the Mycenaean period it appears that Troy, while still located close to the coast (Fig. 4.13, showing the probable coastline during the Mycenaean period) was also flanked to the south west by a large area of marsh at the mouth of the Karamenderes river. Harbour sites have been suggested at Yeniköy and Kesik and Kum Tepe (Cook 1973) but these, on the basis of the analysis of the cores and marine material would certainly have been filled in by the Late Bronze Age (Kayan 1995, 220, 225 & 229 respectively). Indeed only Kum Tepe has any evidence of human use in the form of a few fragments of Mycenaean pottery dating to LH IIIB (Table 4.6).

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[9] The averages are calculated from the tables given in Neumann. His research was based on data for Çanakkale for the years 1976-1988. Similar figures are available for Constantinople for the years 1847, 1848 & 1856 suggesting little difference in the last century.

There is a gap in terms of distribution of sites in the areas north of the river Gediz (north of İzmir). This is not entirely unexpected since Mycenaeans may not have settled extensively on Chios until LH IIIC (Hood 1986, 171)[10], and may never have settled on Lesbos at all and are therefore hardly likely to have had contact with or settled on the adjacent shore. The octopus stirrup jar from Çandarli-Pitane has been given a LH IIIC date (Mee 1998; Perrot & Chipiez 1894, 923; Fig. 489 & 491) and would therefore support the theory of a later expansion into this area. However new excavations on the island of Psara, off the north west coast of Chios, have uncovered an extensive cemetery which was clearly in use from as early as LH IIIA[11].

The Gediz river valley, extending today some 217km inland, forms a natural channel for the movement of goods to and from the interior. It is a major perennial river which drains a large area and transports an estimated 3-6 million tonnes of sediments each year, most of which is deposited into İzmir Bay (Higgins & Higgins 1996, 139). The location of important sites with Mycenaean style pottery, such as Çerkes Sultaniye, Egriköy and Sart (Sardis) along the course of this river confirms its use as a trade route.

Fig 4.14 shows the line of the coast today (hatched) while the areas of alluvium have been removed to give an indication of the shore line in the Mycenaean period, approximately 30km further inland. This change in the coast now places the site of Buruncuk (Larisa) on the sea shore close to the mouth of the Gediz river and thus a possible candidate for a port of trade. While as yet only LH IIIC pottery has been found at Larisa (see Table 4.6), the cemetery site of Panaztepe, only a little further inland and beside the old bed of the Gediz, is rich in material dating to LH IIIA2 and B. The wealth of its tombs suggests that there must have been an equally important settlement in the adjacent area, controlling access up the river valley.

A little further to the southeast and dominating the eastern end of the bay of İzmir is the site of İzmir which, with a convenient and safe harbour, must have played an important

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[10] It seems that the sanctuary at Kato Phana on Chios may also have been in use at this date (Wardle, N., in press).

[11] Excavation is currently in progress at Psara under the auspices of the Mytilene Ephoria and a small selection of the grave goods can be seen on display in Chios museum.

role in controlling and encouraging trade in this area. To the west, conveniently located on a peninsula and controlling entry into the bay of İzmir itself is Clazomenae. Two sites have been excavated here, Liman Tepe and Urla Iskelesi. A study of the Mycenaean material from the latter has suggested contact with the Mycenaean world from as early as LH I which continued into late LH IIIC. This unbroken continuity in contact, as well as its ideal location for monitoring any shipping passing into the bay of İzmir, which is even today one of the safest harbours in the Aegean, supports its possible identification as the main port of trade for the area.

The Küçük Menderes river valley is the next area of Mycenaean contact to the south. Once again this is an area that has undergone many changes in coastline since the second millennium BC and it is estimated that the present shoreline is at least 10-14km further out than at that time (Higgins & Higgins 1996, 143). The current shape of the alluvial plain suggests that it was formed originally by a rise in the water level, flooding the area, probably due to seismic activity some time prior to the Mycenaean period. Since then the river has been pouring sediment into the area (Buck *pers. comm.*). The effects of the advancing coastline are perhaps seen most clearly at the site of Ephesus where the first temple of Artemis, constructed in 550 BC, was located above the flood level of the river. By 356 BC the level of the land and the water table had risen so much that the new temple had to be built on foundations three metres higher than the original temple (Bammer 1990).

A possible candidate for a port of trade governing the entrance to the river and thus the flow of goods into the interior is Selçuk, which in the Mycenaean period was a coastal site, well equipped with harbours (Fig 4.15). Pottery dating from LH IIIA1 to LH IIIB from that site and from beneath the Byzantine citadel suggests that it could have played an active role in trade with the Mycenaeans. The identification of a Mycenaean cult centre under the nearby Artemision at Ephesus, (if true, see 5.6.1), would support the presence of a port of trade in this region. The cluster of newly identified sites up this valley and those of its tributaries, resulting from recent survey work and excavation in the area, illustrate clearly the importance of this route into the interior (Fig 4.24).

The Büyük Menderes river valley appears to be the next major route of communication to the south, penetrating some 250 km into the interior. A couple of sites with Mycenaean material have been found along the course of the river. Beycesultan, which is located almost at the river's source, suggesting its role as a natural channel for trade. Dr E.B. French, however, informs me that the river valley is extremely marshy and as such unlikely to have been a preferred route to inland sites such as Beycesultan when access over the mountain pass from Gavurtepe would have been less time consuming. (Gavurtepe itself could be reached either by travelling along the Gediz or the Küçük Menderes river valleys and today the railway follows the former route).

The coast here is estimated to have advanced about 15m a year, causing many sites to become isolated from the coast (Higgins & Higgins 1996, 149). These include Miletus (Fig 4.16) which was a coastal site in the Mycenaean period, but is now completely landlocked as a result of silting up of the mouth of the Meander (Büyük Menderes). Located on a narrow peninsula governing the entrance to what was then a large bay, it was ideally positioned to control any trade up the river valley a short distance away. Material recovered from Balat-Miletus as well as from the Miletus region indicates continuity in contact with the Mycenaean world from LH I through to LH IIIC and the site is not only likely to have been a Mycenaean settlement but also, like Troy, a port of trade for the area. This is also supported by evidence from Değirmentepe, which served as the cemetery for Miletus.

The final cluster of sites with Mycenaean material on the west coast is located further to the south on and inland from Bodrum peninsula. Excavations at the cemetery site of Müskebi have uncovered exceptionally rich graves of LH IIB to LH IIIC date, which relate closely to those on Kos and Rhodes. There must have originally been a wealthy settlement associated with this cemetery, which might have acted as the port of trade for this area. The proximity, however, of both Kos and Rhodes must not be ignored and it is possible that the islands themselves acted as the forum for exchange of goods with traders from Anatolia (see Chapter 5).

Knidos, the southernmost peninsula, with its two harbours for all weathers, is reported to have Mycenaean pottery but was probably only a harbour site and used for the communications route between Kos, Rhodes and the south coast. It is not sited on a direct route to the interior. Other material arriving in Anatolia, particularly that found in the south, most probably followed similar routes to those mentioned above, but as yet no other major areas of Mycenaean contact have been identified. For example at the site of Maşat in north eastern Anatolia, material dating to LH IIIB most probably arrived through a port of trade on the Black Sea coast, though nothing can be confirmed. Sherds with linear decoration, formerly identified as Mycenaean from Alkalan, located close to the coast and a possible port of trade are now considered to be much later (Mee 1978, 124).

Recent excavations at the site of Kilise Tepe (Hansen & Postgate 1999), near the town of Mut, have highlighted the importance of another route up the Göksu river, one of the major valleys penetrating into western Anatolia from the south coast. It was undoubtedly via this route that Mycenaean pottery reached the sites of Gödelesin and Uç Hüyük not far distant from modern Konya. The single surface sherd, reported by Gjerstad (1934), from Hüdüde Hüyük, which is located near the mouth of the Göksu close to modern Silifke indicates contact with that part of the coast. Its location makes it ideal for governing access into the river, but since the material from Gjerstad's survey has been lost and no excavation has been carried out, it cannot be classed as a port of trade.

The situation in Cilicia appears to have been similar with goods arriving at coastal sites and then utilising the natural routes of river valleys to gain access to the interior (Fig 4.17). Gozlukule (Tarsus), rich in Mycenaean pottery from as early as LH IIIA1, lies at the foot of a route through the Bolkar Mountain range, though as yet no site with Mycenaean style pottery has been found on this route. The sites of Kazanli and Mersin along the coast to the east also have good quality early pottery, suggesting the importance of this stretch of the coast for contact. The majority of the other sites in Cilicia with Mycenaean style pottery are located along the wide valley formed by the Ceyhan Nehri, though how early this contact was established is uncertain since the

material recovered from the surveys by Gjerstad (1934) and Seton Williams (1954) no longer exists.

4.3 FREQUENCY AND VOLUME OF TRADE

Any assessment of the frequency and volume of trade in the prehistoric period is complicated by a number of factors. In the case of Mycenaean contact with other regions of the Mediterranean not only is the dating of individual items problematic, but archaeological recovery and reporting has been far from systematic. In most areas it is not possible to calculate the percentage of Mycenaean imported pottery in relation to local wares, which could give some indication of its importance in the local economy. Where it has been possible, as at Vivara in Italy or Assiros in Macedonia, the percentage of Mycenaean pottery is rarely greater than 5%. This figure compares surprisingly well with that of the decorated Mycenaean pottery on a southern Greek site in the LH IIIB period (Wardle, K.A., 1968, 264). It is likely that in general only decorated items of Mycenaean pottery were thought suitable for 'export'.

The cargoes of the Ulu Burun and Gelidonya ships have given some idea of the quantity of items traded on a single ship, but calculations based on individual items, in areas such as Sardinia, would suggest that, in total, not even one ship load of material has so far been discovered/recovered. Even this would have been collected over a time span of 500 years and clearly what has been found is only a tiny proportion of the actual quantity exported.

The frequency of Mycenaean pottery, both imported and locally made, in different regions and at different times is, however, a good indication of the intensity of trade as a whole. As already argued (2.7.8) pottery in this region is never likely to have been an item of trade of such importance that it formed the principal part of any long range cargo, though it often served as transport vessels for more valuable commodities or as a tradeable 'ballast' to complete a cargo. It is a 'marker' for places which formed nodes in maritime trade networks and an indicator of the fluctuating levels of trade.

The occurrence of Mycenaean pottery has been tabulated by site according to date (4.3.7, Tables 4.1–4.6) but this process has not been without uncertainty and some

arbitrary decisions have had to be taken. In many cases sherds are found in contexts without clear dates and so the tables are representative of an accumulation over the entire period of Mycenaean contact. (The dates of specific items are discussed in Chapter 5, where relevant, in the context of the effect of acculturation). The dates attributed to individual items are the results of my own reassessment of all the published material in conjunction with the relevant stratigraphy (where published) and where possible a reassessment of the material *in corpore* from the relevant sites.[12] This information is presented graphically in the following section (4.3.8, Tables 4.7-4.14) to illustrate the volume of trade and its frequency throughout the 16th-11th centuries, bearing in mind the limiting factors mentioned above.

By the end of the 13th century local manufacture had been adopted to some extent in every region, often with, in consequence, a substantial increase in the quantity of 'Mycenaean' pottery in circulation which may well reflect an increased level of acculturation rather than increasing stimuli provided by increasing trade. In the account that follows, the principal conclusions about frequency and date, as well as type of find context and the introduction of local manufacture are highlighted.

4.3 1 Sardinia

(Tables 4.1and 4.7)

In general Mycenaean pottery in Sardinia is not prolific: there are only 13 sites recorded to date and all are settlement contexts. Only two, Nuraghe Antigori and Tharros, have sufficient quantities of pottery to permit a study of the relationship between local and Mycenaean vessels (5.1.8), though this may well be a reflection of their more recent and thorough excavation. The earliest Mycenaean pottery dates to LH IIIA2 and comes from two sites, Nuraghe Antigori, (already identified as a possible port of trade, 4.2.1) and Nuraghe Arrubiu di Orroli.

[12] I am grateful to Dr E.B. French for her suggestions and advice in the light of her new work on the LH IIIC material at Mycenae.

The frequency of pottery (as measured by the number of sites at which it is represented) increases during the LH IIIB period, which also sees the adoption of Mycenaean technology to imitate Mycenaean wares locally. There is evidence of continuing contact up to LH IIIC, with pottery of this date reported from eight sites, which seems to have been the period of greatest diffusion.

Only one site, Antigori–Sarrok, has enough pottery to provide statistical information about general trends and it reflects a pattern similar to the one illustrated here on the basis of the sites as a group (Table 4.9).

4.3.2 Sicily and the Aeolian Islands

(Tables 4.2a&b, 4.8 and 4.9)

Aegean pottery was already reaching this area in small quantities from the MH period on, with two find spots in the Aeolian Islands (Capo Graziano and Lipari-Acropolis) and one certain (Monte Grande) and one reported (Monte Sallia) in Sicily. LH I pottery was also found at the same group of sites. So far, twenty one sites in Sicily and six in the Aeolian islands have evidence of Mycenaean pottery.

New discoveries in Sicily have shown the presence of Mycenaean pottery at some sites earlier than the LH IIIA date that has long been considered the point of initial contact in Sicily. The earliest finds from the settlement site of Madre Chiesa di Gaffa in the Agrigento region are dated to LH II and there appears, moreover, to be continuity of contact through to LH IIIC. It is possible that early Mycenaean pottery existed at settlement sites such as Thapsos, but since excavation there began in the late 1880's it is likely that much of the material went unrecognised.

Mycenaean pottery proliferates during LH IIIA, both in its representation at a greater number of sites, but also in absolute numbers and this trend continues during LH IIIB (Table 4.8). This can largely be explained when the contexts of the material are considered. The majority (nearly two thirds) of the pottery recovered from Sicily comes

from graves, whether these are Mycenaean or native in style, with one or two vessels in each. Much of this is of LH IIIA date and most seems to have been imported (Jones *et al.* 1996). (The trends in burial practice and their contribution to the discussion of acculturation, as evidenced in particular by the material from Thapsos, are considered in section 5.2.4). By the LH IIIC period the situation has changed substantially – there are only two burial sites with pottery of this date (Milena and Pantalica).

Considering settlement evidence alone, (although settlements are rather under-represented), a different trend becomes apparent. From LH IIIA on pottery of all phases is present at most sites showing a steady level of contact over time. Trends in actual quantities of pottery reflect a similar story.

In contrast, in the Aeolian islands less than 10% of the material comes from graves, many of which have been disturbed by later settlement construction. The Aeolian Islands are unusual in showing continuous contact from the Middle Helladic to LH IIIB (Table 4.9).[13] They show a fairly consistent increase in the quantity of pottery in the earlier phases, with a peak around LH IIIA, before tailing off to a single site in LH IIIC. Unlike other areas, the quantities of pottery in LH IIIB and LH IIIC are more restricted and in this area at least the local production of Mycenaean was limited. Contact with this area was perhaps much more closely related to the exploitation of obsidian in the early Mycenaean period.

Table 4.2a presents the Mycenaean style pottery from Sicily and Table 4.2b the Mycenaean style pottery from Aeolian Islands, some of which is based on work undertaken for an MA dissertation (Wardle, N., 1997). However recent excavations in Sicily, particularly at the sites of Monte Grande (Castellana 1997b; 1998; 1999) and Madre Chiesa di Gaffa (D'Agata 2000) have necessitated some reassessment of the material.

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[13] This picture may change in the next few years as new evidence from excavations on Sicily is published. Excavations at the site of Madre Chiesa di Gaffa have identified Mycenaean pottery from as early as LH II continuing though to LH IIIC, but it has not yet been possible to excavate earlier periods at the site,

4.3.3 The southern Italian Peninsula

(Tables 4.3, 4.10 and 4.11)

Sites where Mycenaean pottery has been reported in mainland Italy now number over 70[14]. The majority of these are located in Apulia and Calabria around the gulf of Taranto and along the Adriatic coast (nearly two-thirds of known sites). Around four-fifths of the material is from settlement contexts and some Aegean imports date from as early as Middle Helladic (Porto Perone). The majority of the sites, however, have produced material dating from LH IIIA through to LH IIIC (Table 4.10), much of which from LH IIIB on is locally made (5.3.8). There is even evidence to suggest that by LH IIIC it was this locally made Mycenaean that was being exported to regions further north and particularly the Po Valley. Enough Mycenaean material has been identified at Broglio di Trebisacce (fragments from over 800 different vessels), Scoglio del Tonno and Punta Meliso to enable comparisons between the indigenous pottery and the imported and locally made Mycenaean and to identify trends in the vessel shapes during different periods (5.3.8).

Table 4.3 presents the pottery from southern Italy. Scoglio del Tonno, Broglio di Trebisacce, Porto Perone, Coppa Nevigata and Punta Melissa are of particular importance in later discussion because the standard of publication and the quantity of the material has facilitated identification of different trends in pottery use and style.

Better information is available for **Vivara**, which shows strong contact with the Aegean in LHI to LH IIIA (Table 4.11). The trend reflects a general increase in popularity until LH IIIA, at which point contact appears to cease altogether.

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which may contain Middle Helladic material. Porto Perone on the Italian mainland also reports pottery from the Middle Helladic to LH IIIC.

[14] 90 sites with Mycenaean are reported in Alberti and Bettelli 2004, 17 but no list of sites is provided. Vagnetti (2004) only lists 50 sites. One possible explanation is that in many cases there are several areas of excavation at a single site, e.g. Taranto where rescue excavations under individual buildings are listed as separate find spots. It seems more sensible, since they must originally have formed part of a single Bronze Age settlement, to count these as one, and I have tried to follow this principle throughout.

4.3.4 Epirus and Albania

(Tables 4.4 and 4.12)

Only a few sites (15) are reported to have Mycenaean pottery from Epirus and even fewer from Albania (6). The total number of fragments or whole vessels of Mycenaean recovered is very limited. The evidence comes primarily from funerary contexts and few settlements have been systematically excavated in either area. Much of the recent material has been gathered as a result of survey work. Table 4.12 shows a steady increase in the number of sites with Mycenaean pottery from LH IIA onwards and all periods are represented.

A proportion appears to have been made locally (or at least at some provincial centre outside the Mycenaean heartland) but this manufacture does not seem to become systematic, although there are a number of rather poor imitations of Mycenaean styles. Pottery, however, does not seem to have been highly prized in this region to judge not only from the limited quantities of Mycenaean pottery but also the relatively crude local products. Throughout the period it is Mycenaean weaponry which seems to be most attractive to the native leader(s) of this region and a relatively large number of both early and late types of swords and spearheads have been found in tombs and other contexts throughout the region.

4.3.5 Macedonia

(Tables 4.5 and 4.13)

Over 66 sites in Macedonia are reported to have Mycenaean pottery The earliest material comes from the sites of Torone and Agios Mamas (Olynthos) and dates to LH I/LH IIA (Table 4.5) and Mycenaean pottery continues to be represented through to the Sub Mycenaean period.

The evidence comes predominantly from settlement sites (approximately two thirds of

the known sites) although a number of sites in western Macedonia have tombs or cemeteries associated with them. However, much of this material was collected during survey work (French, D.H., 1969) and was never dated more precisely than 'Mycenaean' (sites marked with an * in the table). Unfortunately as the collection has been misplaced it has not been possible to see the material or review its date.

There is a clear increase in the number of sites with Mycenaean pottery during the LH IIIB period while an almost similar number exist in LH IIIC as in LH IIIB (Table 4.13). This increase is also reflected in the increasing quantities of pottery found at individual sites such as Assiros, Kastanas and Toumba Thessaloniki (Stelios Andreou *pers. comm.*), for example, where quantified data is available (Chapter 5)

Local production seems to have started in LH IIIB and was standard by LH IIIC. A further intermediate category termed 'provincial' was most probably made at a number of centres in the region before being distributed within it.

4.3.6 Anatolia

(Tables 4.6 and 4.14)

80 sites with Mycenaean style pottery have been reported from Anatolia (Table 4.6), clustered mainly in western Anatolia and Cilicia, as illustrated in Fig 4.17 (included in this number are the Gelidonya and Ulu Burun wrecks). While the material from central Anatolia and Cilicia is included here to give a complete record of the Mycenaean style pottery throughout Anatolia, the discussion in Chapter 5 and the data used for an assessment of acculturation is restricted to the west coast. The evidence to date comes from a fairly even proportion of settlement, cemetery and survey contexts and appears to follow Mycenaean stylistic trends quite closely, particularly those in the eastern Aegean islands, forming what is known as the "eastern Aegean-Anatolian interface" (see Chapter 6). The prolific material from the settlement at Troy and from the cemetery sites of Müskebi and Panaztepe forms the basis of the analysis of changing trends in the function of Mycenaean pottery (5.7.8).

Several sites on the west coast and one in Cilicia (Kazanlı) have pottery dating to the beginning of the Mycenaean period. There is a clear increase in the number of sites with LH IIIA2 pottery, reflecting perhaps the close links with the eastern Aegean islands and Mycenaean heartland, which were also flourishing at this time. There appears to be a gradual decline in the number of sites during the subsequent periods, a change which perhaps corresponds with the emergence of the Hittite civilisation as the dominant culture in western Anatolia (?early) in LH IIIB (Table 4.16).

The local manufacture of Mycenaean pottery starts earlier here than in any other region of this study and was well established by LH IIIA, while imports become rarer. The level of production is such that sites such as Miletus, for example, appear to have been exporting pottery to the islands of the Dodecanese by LH IIIA2.

Unlike the other regions under study, Table 4. 8 requires further comment since a number of problems arose during its compilation, particularly over the names of sites. I shall list them alphabetically to avoid confusion and I have used current Turkish spellings and given alternative names, where appropriate. I am grateful to the assistance of Dr E.B. French and Dr D.H. French in untangling the various problems:

1) Beşik Yassı Tepe is also published under the name Besige (Özgünel 1996) = Beşik Tepe
2) Fraktin = Firaktin = Firakdin
3) Halkakoy = Halkapinar
4) Pompeiopolis is almost certainly Solı
5) Tire-Ahmetler mentioned in Mee 1998, 138 and Özgünel 1987. Ahmetler does not exist as a village in the census for the area nor can it be located on 1: 200000 map (information kindly provided by Dr D.H. French. However, the pot illustrated in Özgünel 1987 - a straight sided alabastra is the same pot as is on display in the Selçuk museum from Halkapinar and illustrated in Bammer (1986-87, 38 fig. 18). Since the vessel was almost certainly brought in by a local villager it may be the confusion arose from the entry given in the museum catalogue as place of origin. It is therefore entered under Halkapinar in the table.

The headings under location are determined according to current archaeological and geographical divisions. They are as follows: WC = West coast; WA = western Anatolia; CA = central Anatolia; C = Cilicia (called after the name of the Roman province there for expediency); SC = South Coast; EA = eastern Anatolia.

4.3.7 Tabulation of frequency of Mycenaean pottery by region and period

(Tables 4.1 – 4.6)

The tables that follow for each region provide a site-by-site and phase-by-phase summary of the pottery and the finds contexts. Unfortunately, data is not yet available for the majority of the sites to enable a separate plot for imported and locally produced pottery to be compiled. Where local imitations of Mycenaean pottery are present this is indicated but no attempt has been made to chart these separately. (The significance of these local imitations is discussed in Chapter 5 in the light of assessing the levels and effects of acculturation).

As a result of the differing quality of publication it has not always been possible to classify the pottery precisely. For instance LH IIIB/C is used where it is impossible, due to the size or quality of the fragment, to date it to one period or the other. These are always represented in the tables as without the prefix LH, i.e. IIIB/C. LH IIIA2/B however, as is more conventional, implies a fragment or pot dating to the transitional period between these phases as laid out in Mountjoy (1986). Where pottery dates to a transitional period such as this, to avoid confusion it is referred to with the suffix *trans.*, i.e. LH IIIA2/B *trans.*

The material included in the tables reflects the published items and in many cases, particularly at sites excavated in earlier years, publication merely records the presence of Mycenaean sherds and not actual numbers or dates. Question marks denote items of suspected Aegean influence or manufacture. X denotes the presence of Mycenaean pottery. Red has been added to the rows to show continuity in the pottery, so that at a glance it is possible to see the earliest and latest Mycenaean pottery at any given site. Where X is not present, particularly in columns headed IIIA/B or IIIB/C (see above) the colour continues through the column to show continuity.

Site	Location	Context	^	LH I	LH II	LH II/III	LH IIIA2	LH IIIB	IIIB/C	LH IIIC
Alghero Nuraghe S.Imbenia	Sassari	Nuraghe	?							
Duos Nuraghes	Borore	Nuraghe	IL					X	X	
Grotta di Su Guano	Sassari	Monte Claro	IL							X
Monte Zara – Monastir	Cagliari	Nuraghe	IL						X	
Nora-Pula	Cagliari	Nuraghe	IL							X
Nuraghe Antigori	Cagliari	Nuraghe	IL				X	X	X	X
Nuraghe Domu S'Orku	Cagliari	Nuraghe	IL							X
Nuraghe Nastasi di Tertenia	Nuoro	Nuraghe	IL							X
Nuraghes Arrubiu	Orroli	Nuraghe	I				X	X		
Grotta Badde, Pozzomaggiore	Sassari	Nuraghe	I							X
Su Nuraxi di Barumini	Cagliari	Nuraghe	IL							X
Territorio di Orosei	Orosei	Robbers	I					X		
Tharros	Oristano	Nuraghe	IL					X	X	X
Total			**13**				**2**	**5**	**4**	**8**

^ *I = Imported Mycenaean; L= Locally made Mycenaean*

TABLE 4.1 IMPORTED AND LOCAL MYCENAEAN FROM SARDINIA

Site	Location	Context	^	MH	LHI	LHII	LHII/III	LHIIIA	LHIIIB	LHIIIC
Agrigento	Agrigento	Tomb/s	I					X		
Buscemi	Syracuse	Tomb/s	LI						X	
Caltagirone	Caltagirone	Settlement	LI						X	X
Cannatello	Agrigento	Settlement	LI					X	X	
Cozzo del Pantano	Syracuse	Cemetery	I					X		
Erbe Bianche/Campobello	Agrigento	Settlement	LI						X	
Floridia	Syracuse	Tomb/s	I					X		
Madre Chiesa di Gaffa	Agrigento	Settlement	LI			X	X	X	X	X
Maiorana	Syracuse	Settlement	LI						X	
Matrensa/Milocca	Syracuse	Tomb/s	I					X		
Milena – Serra del Palco	Caltanisetta	Tomb/s	LI						X	X
Milena – Monte Campanella	Caltanisetta	Settlement	I					X		
Molinello	Syracuse	Tomb/s	I					X		
Monte Grande	Trapani	Tomb/s	LI	X	X	X		X		
Monte Sallia/Cosimo	Agrigento	Tomb/s	I	?						
Pantalica	Syracuse	Cemetery	LI							X
Plemmyrion	Syracuse	Cemetery	I					X		
Scirinda/Ribera	Agrigento	Settlement	LI						?	
Serra Orlando	Messina	Settlement	LI						X	X
Syracuse	Syracuse	Tomb/s	LI					X		
Thapsos	Syracuse	Settlement	LI					X	X	X
		Cemetery								
Total			**21**	**2**	**1**	**2**	**1**	**12**	**10**	**6**

^ *I = Imported Mycenaean; L = Locally made Mycenaean*

TABLE 4.2A IMPORTED AND LOCAL MYCENAEAN FROM SICILY

Site	Location	Context	^	MH	LHI	LHII	LHII/III	LHIIIA	IIIA/B	LHIIIB	IIIB/C	LHIIIC
Capo Graziano	Filicudi	S &T	LI	X	X	X	X	X	X			
Faraglioni	Ustica	S	LI								X	
Lipari-Acropolis	Lipari	Settlement	LI	X	X	X	X	X	X	X	X	X
Portella	Salina	Settlement	I				X		X			
Punta Millazzese	Panarea	Settlement	LI			X		X		X		
Sierra dei Cianfi	Salina	Settlement	I				X		X			
Total			**6**	**2**	**2**	**3**	**4**	**3**	**4**	**2**	**2**	**1**

^ *I = Imported Mycenaean; L = Locally made Mycenaean*

TABLE 4.2B IMPORTED AND LOCAL MYCENAEAN FROM THE AEOLIAN ISLANDS

Site	Location	Context	^	MH	LH I	LHIIA	LHIIB	LH II/III	LH IIIA	LH IIIB	LH IIIC
Ancona	Marche	Settlement	L								X
Avetrana - Caverna dell'Erba	Apulia	Cave	L							X	X
Avetrana - Grotta san Martino	Apulia	Cave	L							X	X
Bari - L'Ospizio di S. Scolastica	Apulia	Settlement	LI			X					X
Broglio di Trebisacce	Calabria	Settlement	LI						X	X	X
Campodoglio di Aquino	Campania	Settlement	L								X
Capo Piccolo	Calabria	Settlement	I			X					
Casale Nuovo	Lazio	Settlement	LI							X	X
Castello di Tartaro	Veneto	Settlement	L								X
Chiesa di S. Domenico	Apulia	Settlement	L							X	X
Coppa Nevigata	Apulia	Settlement	LI						X	X	X
Cozzo Marziota	Apulia	Settlement	LI							X	X
Crotone	Calabria	Settlement	LI			X				X	X
Egnatia	Apulia	Settlement	L						X	X	X
Fabbrica di Soci	Veneto	Settlement	LI								X
Fondo Paviani	Veneto	Settlement	LI								X
Francavilla Marittima (Motta)	Calabria	Settlement	LI							X	X
Frattesina	Veneto	Settlement	L							X	X
Giovinazzo – dolmen site	Apulia	Cemetery	I		X	X					
Giovinazzo	Apulia	Settlement	I						X		
Grotta Cardini (Praia a Mare)	Calabria	Settlement	I						X		
Grotta di Polla	Campania	Cave	LI								X
Grotta Petrosa	Calabria	Cave	I		X	X	X				
Grotta Manaccora	Apulia	Settlement	LI		?	X	X			X	X
Grotta San Marino	Terni	Cave	I								X
Ischia – Castiglione	Ischia	Settlement	I					X	X		
Leuca (Lecce)	Apulia	Settlement	LI							X	X
Luni sul Mignone	Lazio	Settlement	LI						X	X	X

TABLE 4.3 IMPORTED AND LOCAL MYCENAEAN FROM SOUTHERN ITALY

Site	Location	Context	^	MH	LH I	LHIIA	LHIIB	LH II/III	LH IIIA	LH IIIB	LH IIIC
Madonna del Petto	Apulia	Settlement	L								X
Molinella	Apulia	S & C	I				X				
Monopoli	Apulia	Settlement	LI				X		X	X	
Montagnana	Veneto	Settlement	L								X
Monte Rovello	Lazio	Settlement	LI							X	X
Montedoro di Eboli	Campania	Settlement	LI								X
Motta di Cirò	Calabria	Settlement	L								X
Otranto	Apulia	Settlement	LI						X	X	X
Paestum	Campania	Settlement	L							X	X
Parabita	Apulia	Settlement	L							X	
Poggio di Castellonchio	Parma	Settlement	I			X					
Porto Cesareo/Scala di Furno	Apulia	Settlement	LI						X	X	X
Porto Perone-Saturo	Apulia	Settlement	LI	X	X	X	X	X	X	X	X
Pulo di Molfetta	Apulia	Settlement	I		X	X					
Punta di Zambrone[1]	Calabria	Settlement	?								
Punta della Penne	Apulia	Settlement	L								X
Punta le Terrare	Apulia	Settlement	LI		X	X			X	X	X
Punta Manaccora	Apulia	Cave	I		X	X	X			X	
Punta Meliso	Apulia	Settlement	LI						X	X	X
Roca Vecchia	Apulia	Settlement	LI			X	X		X	X	X
San Cosimo d'Oria (Brindisi)	Apulia	Cemetery	L							X	X
San Giovenale	Lazio	Settlement	L							?	?
San Maria di Ripalta	Apulia	Settlement	L								X
San Vito	Baslicata	Settlement	L							X	X
Santa Maria in Colonna	Apulia	Settlement	L							X	X
Sassano (Grotta del Pino)	Campania	Cemetery	I		X	X					

[1] One piece of Mycenaean recorded but unpublished (Vagnetti 2004, 85)

TABLE 4.3 IMPORTED AND LOCAL MYCENAEAN FROM SOUTHERN ITALY

Site	Location	Context	^	MH	LH I	LHIIA	LHIIB	LH II/III	LH IIIA	LH IIIB	LH IIIC
Satyrion	Apulia	Settlement	LI							X	X
Scoglio del Tonno	Apulia	Settlement	LI						X	X	X
Taranto (San Domenico)	Apulia	Settlement	LI						X	X	
Telamone	Lazio	Settlement	L								X
Termitito	Baslicata	Settlement	LI						X	X	X
Timmari	Apulia	Settlement	LI							X	X
Toppo Daguzzo	Apulia	S & C	LI							X	X
Torano Castello[2]	Calabria	Settlement	?							X	
Torre Castelluccia	Apulia	Settlement	LI						X	X	X
Torre del Mordillo (Cosenza)	Calabria	Settlement	LI		X	X	X		X	X	X
Torre Guaceto	Basilicata	Settlement	L								X
Torre Santa Sabina	Apulia	S & C	LI						X	X	X
Trani (Capo Colonna)	Apulia	Settlement	LI							X	X
Treazzano di Monsampolo	Marche	Settlement	LI							X	
Phlegrian Islands											
Vivara – Punta D'Alaca	Vivara	Settlement	I		X	X	X	X	X		
Vivara – Punta di Mezzogiorno	Vivara	Settlement	I		X	X	X	X	X		
Vivara - Punto Capitello	Vivara	Settlement	I			X	X	X	X		
Total			**71**	**1**	**11**	**17**	**11**	**5**	**23**	**41**	**51**

^ *I = Imported Mycenaean; L = Locally made Mycenaean*

[2] Two fragments of Mycenaean recorded but not published, dated to LH IIIB by Vagnetti (2004, 85)

TABLE 4.3 IMPORTED AND LOCAL MYCENAEAN FROM SOUTHERN ITALY

Site	Location[1]	^	Context	LH I/LHIIA	LH IIB/IIIA1	LH IIIA2	IIIA2/B	LH IIIB	IIIB/C	LH IIIC	Final Myc	?
Barç	A	LI	cemetery							X		
Beş	A	I	settlement						X			
Margëlliç	A	I	settlement		X	X						
Pazhok	A	I	tumulus	X								
Sovjan	A	I	settlement					X				
Tren	A	I	settlement					X				
Aristi	E	I	cist grave									X
Dikorpho	E	I	settlement									X
Dodona	E	LI	settlement			X		X		X		
Ephyra	E	LI	cist &tumulus			X		X	X	X		
Galatas	E	I	settlement*									X
Kassope	E	I	Settlement									X
Kastritsa	E	LI	Settlement & cist graves					X	X	X		
Kastriza	E	I	settlement*									X
Kiperi	E	LI	tholos		X	X	X					
Koumasaki	E	I	settlement*									X
Krya	E	I	settlement									X
Mazaraki	E	LI	cist graves					X		X		
Nekyomanteion	E	I	settlement & cist graves									X
Skaphidaki	E	I	settlement* & cist graves									X
Vouvopotamos	E	I	settlement*									X
Total		**22**		**1**	**2**	**4**	**1**	**6**	**3**	**5**		**10**

[1]*E - Epirus; A – Albania; ^ I=imported Mycenaean; L=locally made Mycenaean; Site* - I am grateful to the excavators for information about the sites where publication is still only preliminary*
*Context * - surveyed sites only*

TABLE 4.4 IMPORTED AND LOCAL MYCENAEAN FROM EPIRUS AND ALBANIA

Site	Location[1]	Context	^	LH I/LHIIA	LH IIB/IIIA1	LH IIIA2	IIIA2/B	LH IIIB	IIIB/C	LH IIIC	Final Myc	?
Agios Dimitrios (Spathes)	WM	Cist graves	LI					X		X		
Agios Mamas[@] (Olynthos)	Ch	Settlement	LI	X		X		X		X		
Aiani	WM	Graves	LI				X	X				
Ano Komi	WM	Cemetery	LI					X		X		
Anthophytos A (Saribazar)	CM	Settlement*	L									X
Anthophytos B (Saribazar)	CM	Settlement*	L									X
Apidea	WM	Settlement	L					X				
Aspros	CM	Settlement*	L									X
Asprovrisi	CM	Settlement*	L									X
Assiros[@]	CM	Settlement	LI			X		X		X		
Athytos	Ch	Settlement*	L					X				
Bouboushti (Platanies)	WM	Settlement	L							X		
Chrysavgi	CM	Settlement*	L					X		X		
Dhrymos (Drymiklava)	CM	Settlement*	L									X
Dion	WM	Graves	L									X
Dourmousli	CM	Settlement*	L									
Epivatai (Baktse)	CM	Settlement*	L									X
Ftelia	WM	Graves	L					X				
Galatista	CM	Settlement*	L									X
Galliko (Salamanli)	CM	Settlement*	L									X
Gona	CM	Settlement	L				X					
Grevena	WM	Graves	LI					X		X		
Kaisareia	WM	Settlement*	L									X

*[1]Ch - Chalkidiki; CM - Central Macedonia; EM - Eastern Macedonia; Th - Thasos; WM – Western Macedonia; ^ I= Imported Mycenaean; L = Locally made Mycenaean; Site[@] - I am grateful to the excavators for information about the sites where publication is still only preliminary; Context * - surveyed sites only.*

TABLE 4.5 IMPORTED AND LOCAL MYCENAEAN FROM MACEDONIA

Site	Location[1]	Context	^	LH I/LHIIA	LH IIB/IIIA1	LH IIIA2	IIIA2/B	LH IIIB	IIIB/C	LH IIIC	Final Myc	?
Kastanas	CM	Settlement	LI				X	X		X	X	
Kitrini Limnis - Mikro Nisi Akrines	WM	Settlement	L									X
Kouphalia A	CM	Settlement*	L									X
Kozani	WM	Graves	L					X		X		
Kranidia	WM	Settlement*	L									X
Lakanokipos	CM	Settlement*	L									X
Leivadia	WM	Graves	L			X						
Leivithra	WM	Graves	L						X			
Loutra Thermis	CM	Settlement*	L									X
Mende[@]	Ch	Pits	L								X	
Mesimeri	Ch	Cremations	L							X		
Mesimeriani	Ch	Settlement*	L									X
Molyvopyrgos	CM	Settlement*	L									X
Nea Kallikratia	Ch	Settlement*	L									X
Nea Silata	Ch	Settlement*	L									X
Neo Chori	WM	Settlement*	L									X
Nikita	Ch	Settlement*	L									X
Omali	WM	Settlement	L									X
Pentalophos A	CM	Settlement*	L									X
Pentalophos B	CM	Settlement*	L									X
Philadelphiana	CM	Settlement*	L									X
Phloyita	CM	Settlement*	L									X
Platania-Boubousti	WM	Settlement	L									X
Polymylos	WM	Settlement	L					X		X		
Poseidi[@]	Ch	Sanctuary	L							X	X	
Profitis Ilias	WM	Graves	L							X		
Prosylio	WM	Settlement	L					X				
Rymnio	WM	Graves	L							X		

TABLE 4.5 IMPORTED AND LOCAL MYCENAEAN FROM MACEDONIA

Site	Location[1]	Context	^	LH I/LHIIA	LH IIB/IIIA1	LH IIIA2	IIIA2/B	LH IIIB	IIIB/C	LH IIIC	Final Myc	?
Saratse	CM	Settlement	LI					X		X		
Servia	WM	?Shrine	I					X				
Siatista	WM	Graves	L							X		
Sokhos Toumba tou Ourda	CM	Settlement*	L			X		X		X		
Sparto	WM	Graves	LI					X		X		
Therme (Sedes)	CM	Settlement*	L									X
Torone	Ch	Settlement	LI	X				X		X		
Toumba Livadi	CM	Settlement*	L									X
Toumba Rakhona	CM	Settlement*	L									X
Toumba Thessaloniki[@]	CM	Settlement	LI			X		X		X		
Trigoniko	WM	Pit Grave	I					X				
Tsotili	WM	Settlement	L							X		
Valtochori	CM	Settlement*	L									X
Vardaroftsa (Axiochori)	CM	Settlement	LI					X		X	X	
Xylokeratia	CM	Settlement*	L									X
Total			**66**	**2**	**0**	**5**	**3**	**22**	**1**	**22**	**4**	**32**

TABLE 4.5 IMPORTED AND LOCAL MYCENAEAN FROM MACEDONIA

Site	Location	Context	^	LH I	LH IIA	LH IIB	LH IIIA1	LH IIIA2	LH IIIB	LH IIIC	Sub Myc	?
Akalan	CA	Settlement	?									X
Akbük	WA	Settlement	LI					X	X	X		
Alapinar	C	Survey	L								X	
Antalya	SC	?	I				X					
Assarlik	WC	Settlement	LI						X	X	X	
Bakla Tepe	WC	Cemetery	LI					X	X			
Bayraklı (Old Smyrna)	WC	Settlement	LI				X	X	X			
Beşik Yassitepe	WC	Cemetery	LI				X	X	X			
Beycesultan	WA	Settlement	L					X	X			
Beylerbey	SA	Settlement	I				X	X	X			
Boz Hüyük	C	Survey	L									X
Buruncuk (Larisa)	WC	Settlement	L							X		
Çandarlı (Pitane)	WC	Tomb	I							X		
Çerkes Sultaniye – Bağyolu	WC	Cemetery	I				X	X	X			
Çitnoğla Ciftlik Hüyük	C	Survey	L					X				X
Colophon (Değirmendere)	WC	Cemetery	LI					X	X	X		
Çömlekçiköy	WC	Cemetery	L							X	X	
Dereköy II	WA	Cemetery	LI				X	X	X			
Dervişli	C	Survey	L									X
Dirmil	WA	Tombs	LI						X	X	X	
Domuztepe	C	Survey	LI							X		
Düver	WA	Cemetery	LI				X	X	X			
Eğriköy	WC	Settlement	L									X
Ephesus	WC	S & temple?	LI				X	X	X			
Eski Foça (Phocaea)	WA	Settlement	LI									X
Eskihisar (Stratonikeia)	WC	Tombs	LI				X	X	X	X	X	
Fethiye (Telmessos)	SC	?	I				X	X	X			
Fraktin (Gümüsoren)	CA	Settlement	L						X	X		
Gâvurköy	C	Survey	L									X
Gâvurtepe (Alaşehir)	CA	Survey	LI				X	X				
Geçemey Hüyük	WA	Survey	L								X	

TABLE 4.6 IMPORTED AND LOCAL MYCENAEAN FROM ANATOLIA

Site	Location	Context	^	LH I	LH IIA	LH IIB	LH IIIA1	LH IIIA2	LH IIIB	LH IIIC	Sub Myc	?
Gelidonya	Off SC	Shipwreck										
Geyre (Aphrodisias)	WA	Settlement	L									
Gödelesin	CA	Settlement	I						X			
Gozlukule (Tarsus)	C	Settlement	L				X	X	X	X		
Halkapinar	WA	Settlement	I				X	X	X			
Hesigin Tepe	C	Survey	L									X
Hüdüde Hüyük	C	Survey	L									X
İldir (Erythrae)	WC	Settlement	I					X				
İslamkadi Çiftlik	C	Survey	L							X		
İzmir	WA	Tomb?	L							X		
Kazanlı	C	S & SF	LI	X	X	X	X	X	X	X		
Kazikbağlari (Elaia)	WC	Settlement	L									X
Kilise Tepe	C	Settlement	LI		X	X	X	X	X			
Knidos (Kinidos)	WC	Settlement	LI									X
Kumtepe	WC	Survey	I						X			
Küren (Iasos)	WC	S &T	LI	X	X	X	X	X	X	X		
Kuşadası (Yılancı Burun)	WC	Settlement	I					X				
Liman Tepe (Clazomenae)	WC	Settlement	I		X[1]			X				
Maşat Hüyük	CA	Settlement	I					X	X			
Mersin (Yümüktepe)	C	Settlement	LI		X	X	X	X				
Milet – (Miletus region)	WC	Survey	LI									X
Milet – Balat (Miletus)	WC	Settlement	LI	X[2]	X	X	X	X	X	X		
Milet - Değirmentepe	WC	Cemetery	LI						X	X		
Misis	C	Survey	L									X
Muğla	WC	?	?									X
Müskebi (Ortakent)	WC	Cemetery	LI			X	X	X	X	X		
Mylasa (Milas)	WC	Settlement	I	X	X	X	X	X	X			
Panaztepe	WC	Cemetery	LI					X	X			

[1] Dated to LHI-IIA in Ersoy 1983, 92.
[2] Mee 1998 suspects these are actually Minoan. Özgünel 1996, 10-12 classifies them as LH II.

TABLE 4.6 IMPORTED AND LOCAL MYCENAEAN FROM ANATOLIA

Site	Location	Context	^	LH I	LH IIA	LH IIB	LH IIIA1	LH IIIA2	LH IIIB	LH IIIC	Sub Myc	?
Pasçu Hüyük	C	Survey	L								X	
Saraköy Hüyük	WA	Survey	L									X
Sart (Sardis)	WA	Settlement	LI				X	X	X	X		
Selçuk	WC	S&T	LI					X				
Sirkeli	C	Survey	L									X
Solı – Pompeiopolis?	C	Survey	L									X
Soyali Hüyük	C	Survey	L									X
Sultan Tepe	C	Survey	L									X
Tanriverdi	C	Survey	L								X	
Tilan Hüyük	C	Survey	L									X
Tille	EA	Settlement	?									
Tömük Kalesi	C	Survey	L									X
Torbalı-Bademgediği Höyüğü	WC	Settlement	L							X		
Troy (Hisarlik)	WC	Settlement	LI	X	X	X	X	X	X	X		
Üç Hüyük	CA	Settlement	L							X		X
Ulu Burun	Off SC	Shipwreck	I					X	X			
Urla Iskelesi (Clazomenae)	WC	Settlement	LI	X	X	X	X	X	X	X		
Vesli Hüyük	C	Survey	L									X
Yatağan	WA	? Tombs	?									X
Yenihisar/Didim (Didyma)	WC	Settlement	I					X				
Zeytinli Hüyük	C	Survey	L									X
Total			**80**	**6**	**9**	**9**	**23**	**37**	**33**	**21**	**8**	**25**

^I = Imported Mycenaean; L = Locally made Mycenaean

TABLE 4.6 IMPORTED AND LOCAL MYCENAEAN FROM ANATOLIA

4.3.8 Tabulation of frequency of Mycenaean pottery through time as an indicator of the intensity of contact.

(Tables 4.7 - 4.14)

The following graphs show trends in the use of Mycenaean pottery in each area based on the percentage of the total number of sites that have pottery in each phase of Mycenaean rather than the absolute quantities. They do not attempt to distinguish between locally made and imported pottery, but, as in all but a few cases, both are present and concurrent, this does not affect the general impression of the trends in each area. Where major discrepancies occur in contextual information these are noted. More details are given region by region in Chapter 5 in the context of detailed discussion of the levels of influence and acculturation they may reflect.

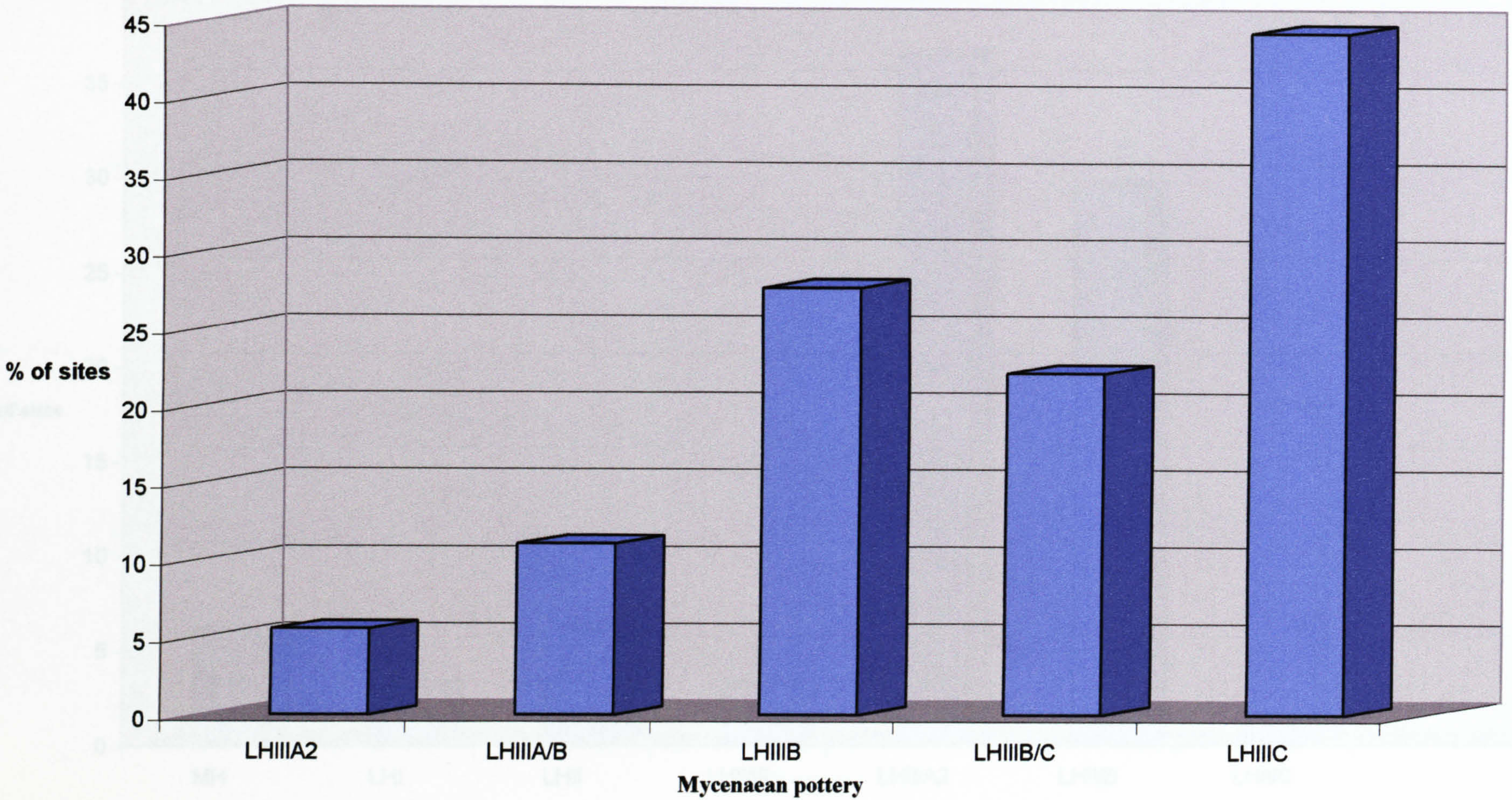

TABLE 4.7 SARDINIA

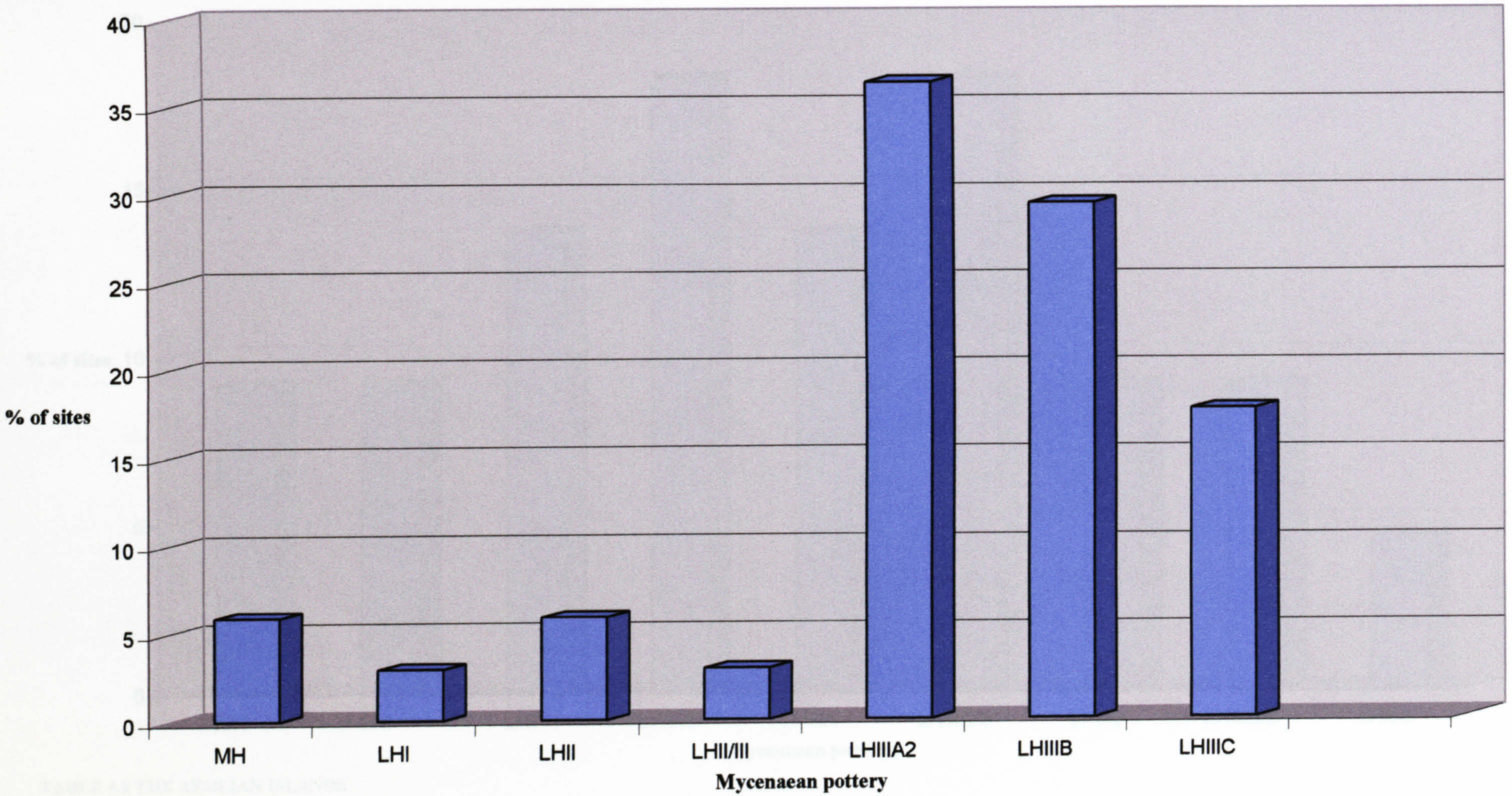

TABLE 4.8 SICILY

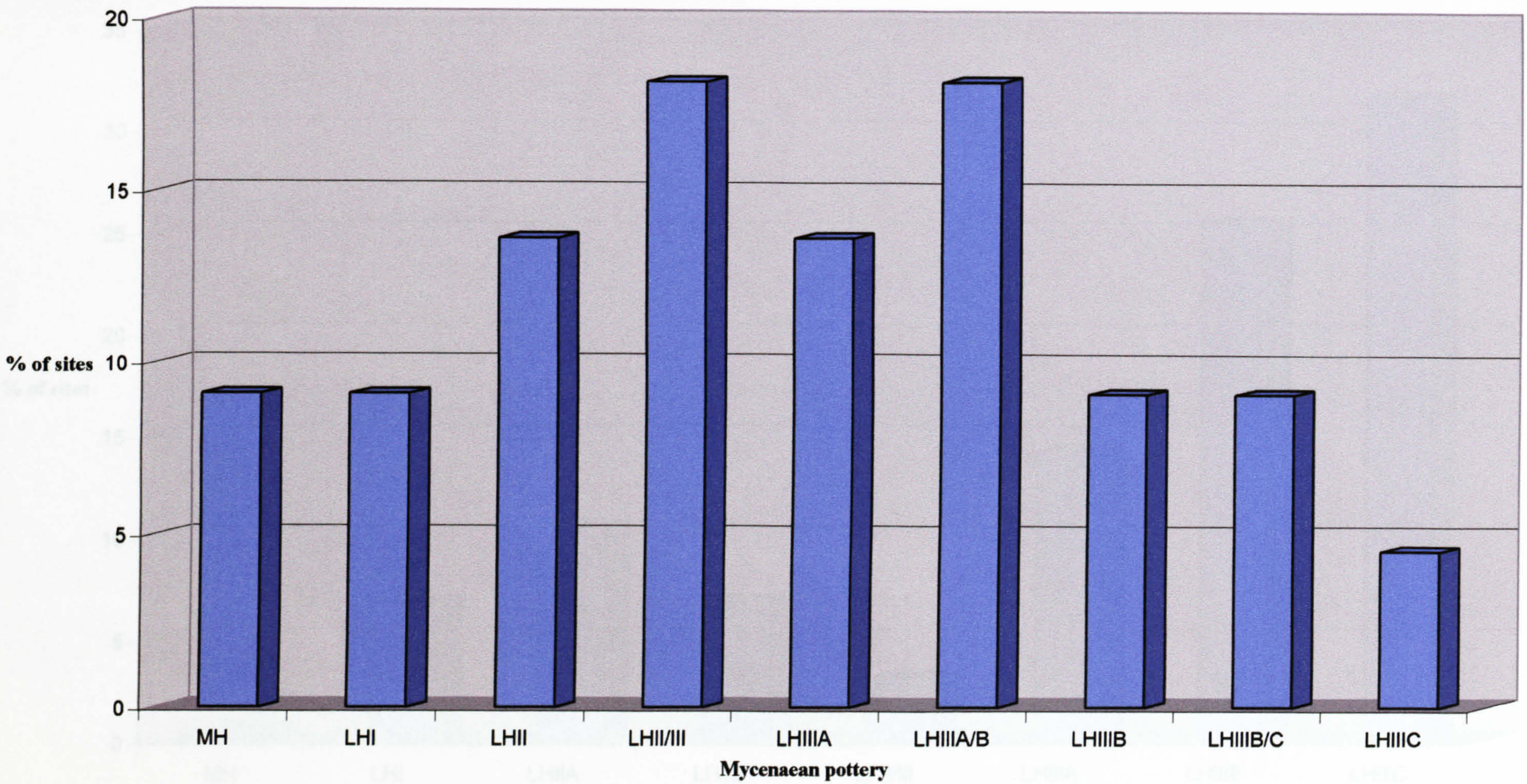

TABLE 4.9 THE AEOLIAN ISLANDS

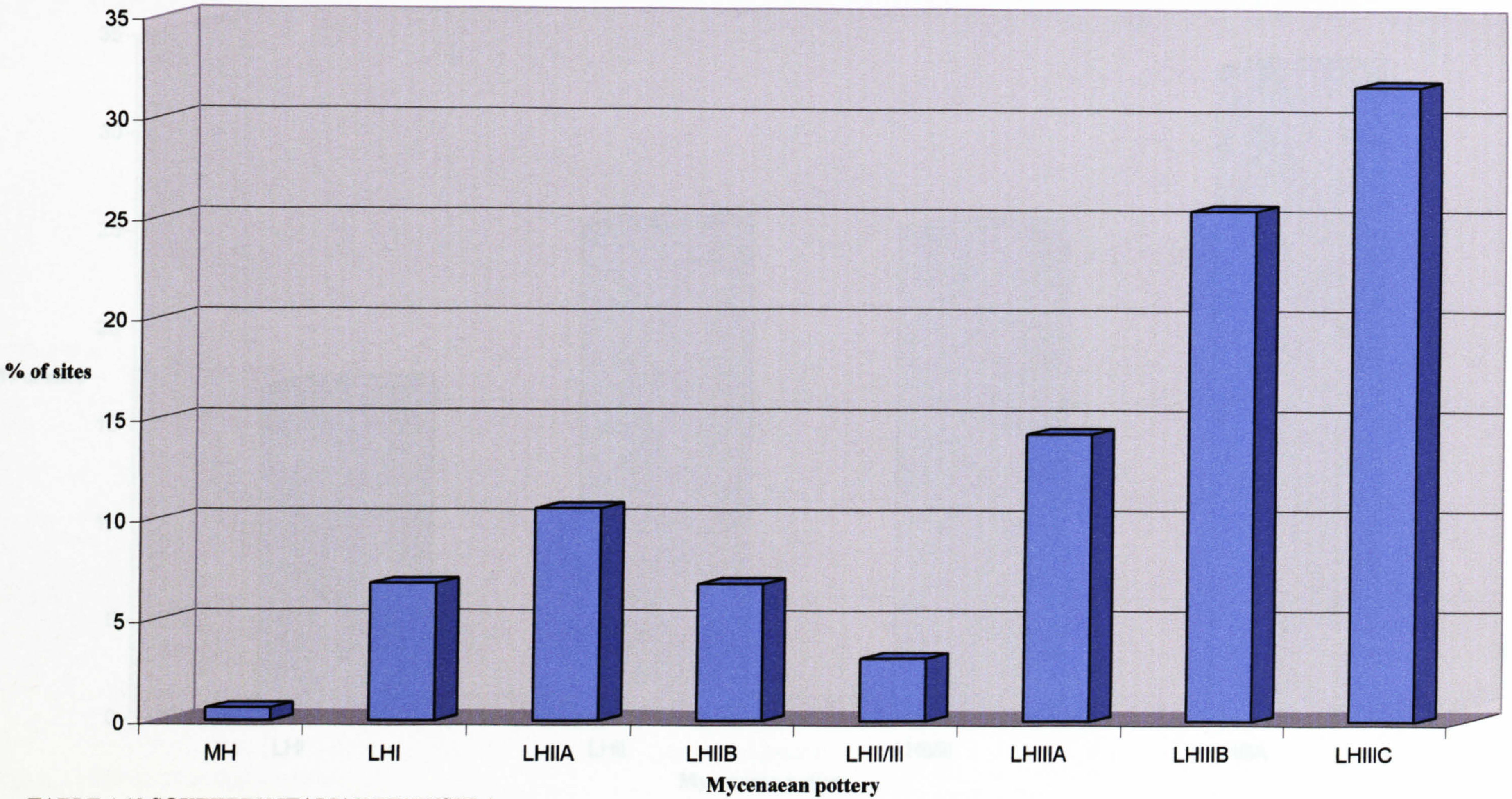

TABLE 4.10 SOUTHERN ITALIAN PENINSULA

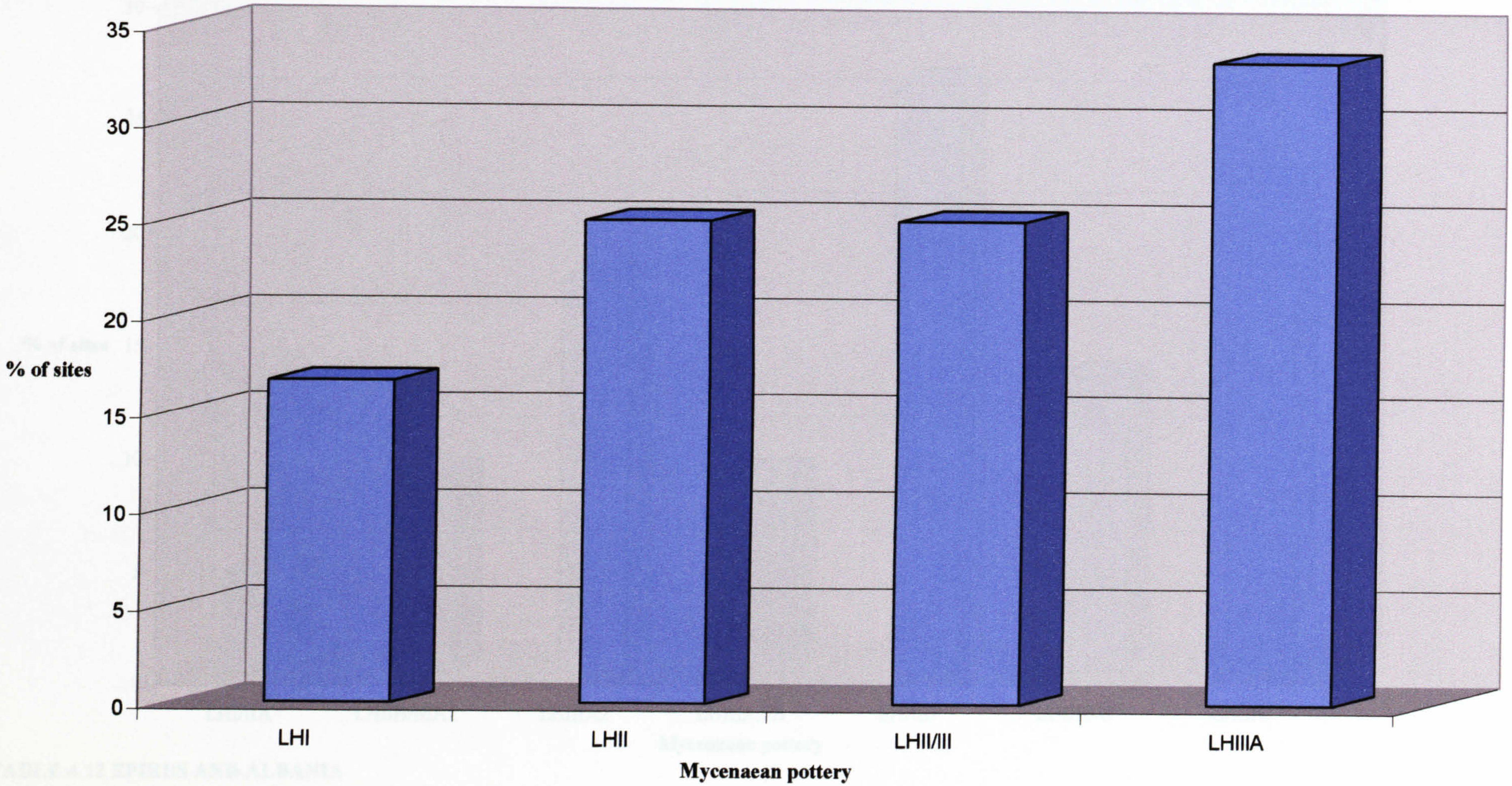

TABLE 4.11 VIVARA

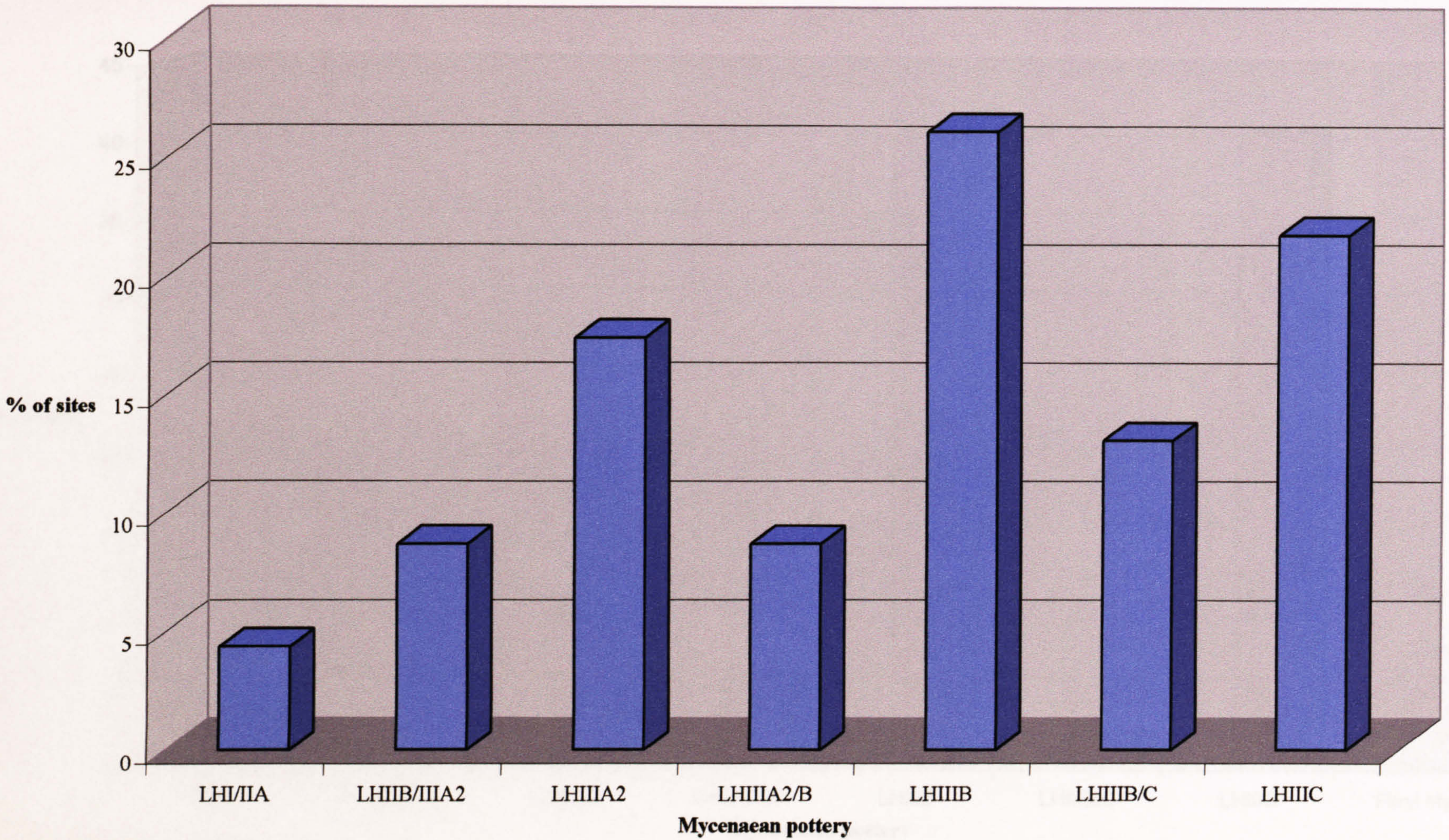

TABLE 4.12 EPIRUS AND ALBANIA

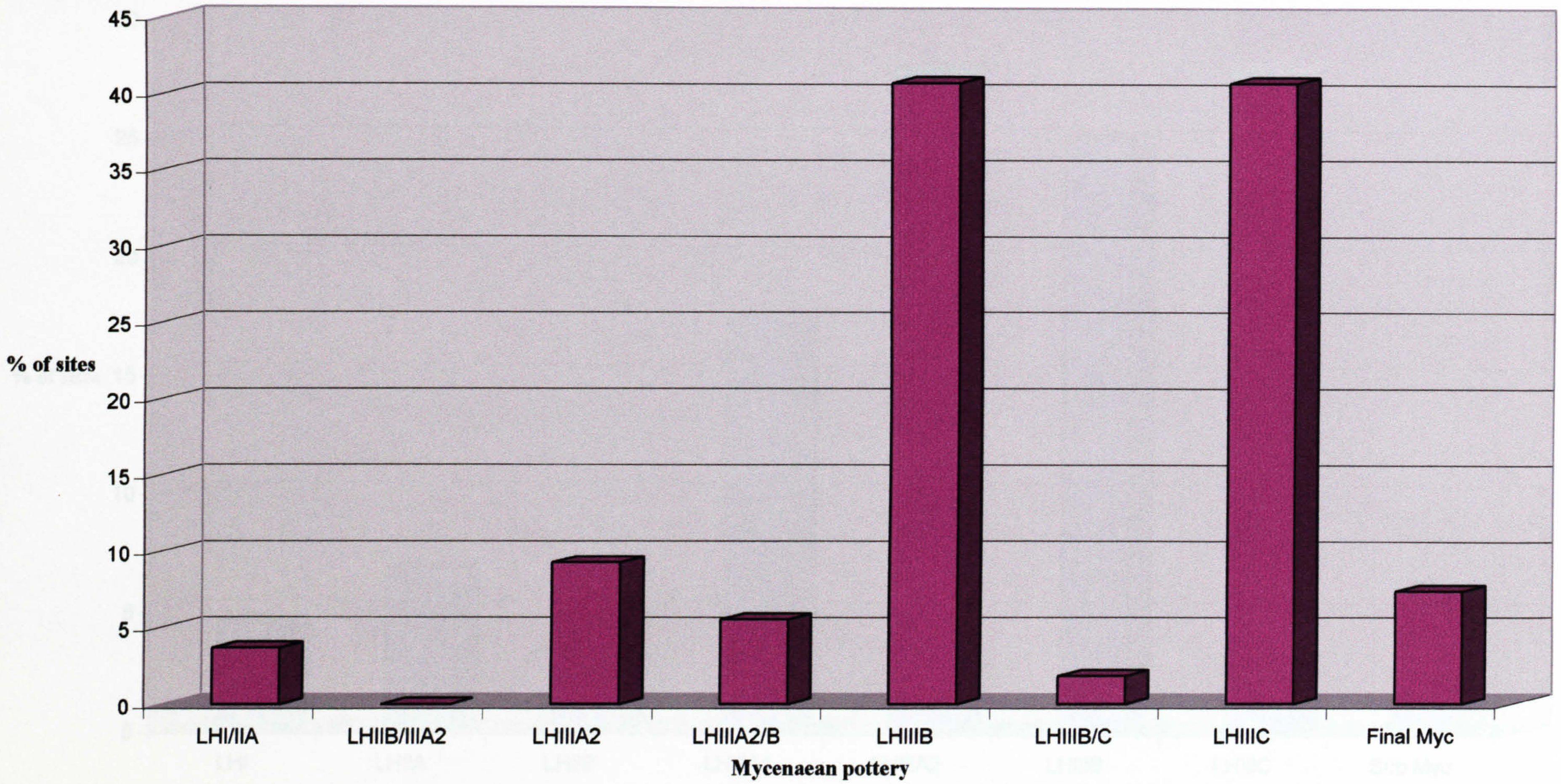

TABLE 4.13 MACEDONIA

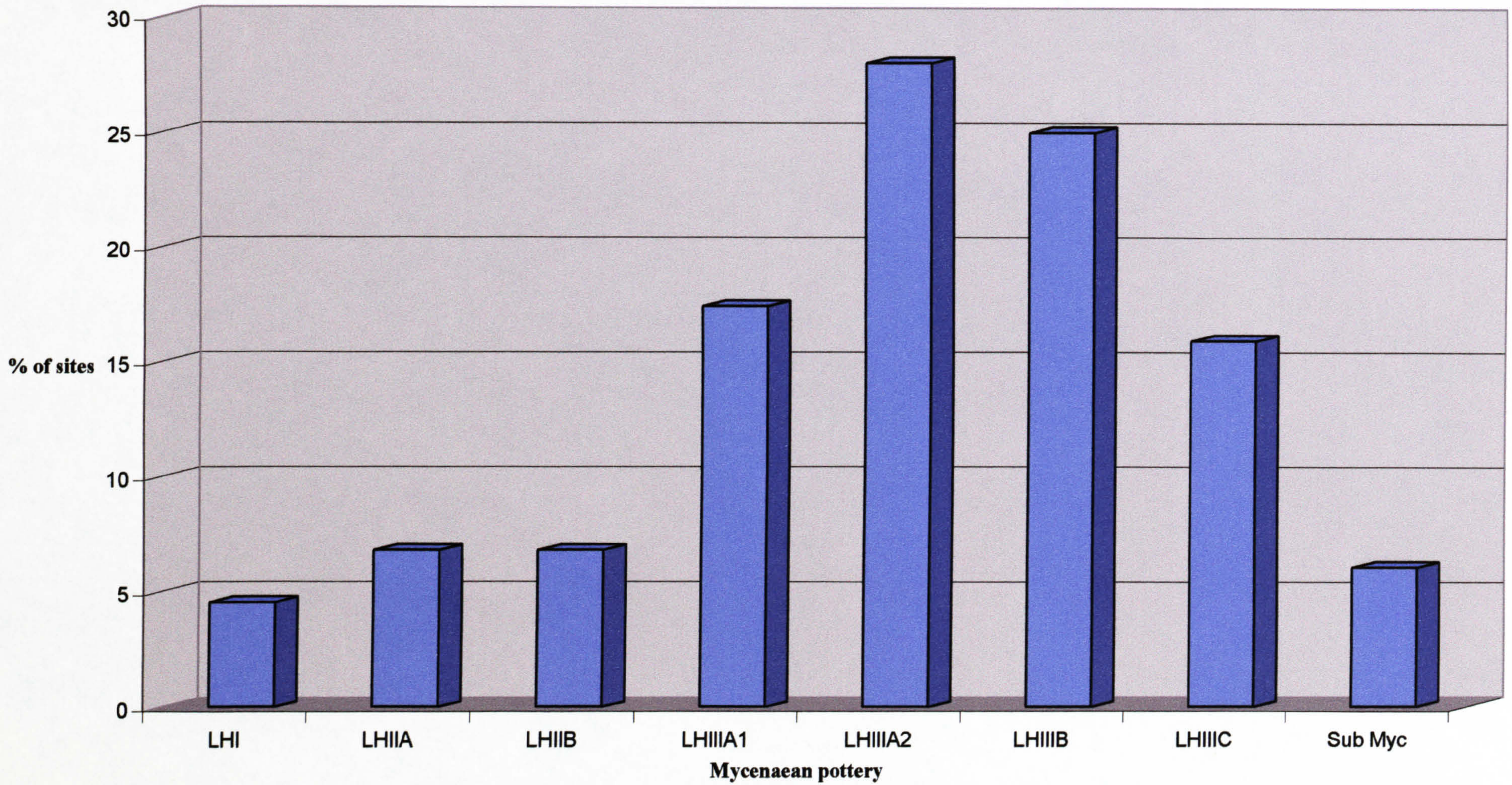

TABLE 4.14 ANATOLIA

5. PRODUCT: THE IMPACT OF MYCENAEAN CONTACT

The diversity of the different areas in terms of their 'native' culture and landscape history necessitates the regional examination of each aspect of culture and its significance. The discussion of the product, the impact of Mycenaean contact in each domain of social activity, follows the methodology set out in Chapter 2, considering the evidence for each of the relevant aspects of their *Religion; Social organisation; Funerary customs; Agriculture; Defensive provision; Architecture; Metalworking and Pottery manufacture*, with particular emphasis on the changes or developments for which outside influences should be considered, whether on a macro scale or in detail. A summary, in tabular form, of this product for each area follows and forms the basis for a region by region comparison in Chapter 6.

5.1 SARDINIA

As a result of its special geographical position within the western Mediterranean, Sardinia was involved in maritime trade from at least Nuraghic I and came to play an important role by the Nuraghic III period, acting as a natural stepping stone between the shores of Italy and the Iberian Peninsula. Mycenaean sherds, for example, dated to LH IIIA or more probably LH IIIB, from the site of Llanete de los Moros (Martin de la Cruz 1988; 1990), a site found inland along the Guadalquivir valley, represent pottery which probably reached Spain as a result of this trade (Almagro-Gorbea & Fontes 1997). In addition to its ideal location for both long and short haul trade, the island also possessed considerable metal resources (though the extent to which these were exploited in the Bronze Age is discussed further below). The discovery in the 1880's of oxhide ingots eventually led to the realisation that Sardinia was a partner in the trading relationships throughout the Mediterranean in the Late Bronze Age, particularly with the Minoans and Mycenaeans and Cyprus (see 1.4 and 4.3.2).

Although at first sight it may seem surprising that distant Sardinia should have links with the Aegean, the mythical stories of trade with Sardinia had already pointed to this. Diodorus Siculus tells us that Aristaeus, son of Apollo and the nymph Cyrene, Queen of Libya, visited Sardinia and Sicily (4.82). He also relates that Heracles sent his Thespiad sons and Iolaus his brother's son to colonise the island of Sardinia. Pausanias (10.17.1-7) on the other hand asserts that the first navigators in Sardinia were Libyans under the leadership of Sardus, hence the name of the island.

Contexts in which imported or locally-made Mycenaean or Aegean artefacts were found include the Nuraghi themselves and the villages surrounding them. Sardinian grave contexts do not include Aegean objects.

5.1.1 Religion

While there is widespread evidence in Sardinia for local cult centres like the temple building at S'Arcu 'e is Forras (Webster 1996, 148) and Malchittu (Sanna 1992, 26), Mycenaean shrines have not been found in Sardinia. So far no convincing argument can be made for Mycenaean religious practices being adopted by the indigenous peoples of Sardinia. Although the discovery of oxhide ingots under pavements in the central rooms of some nuraghe has been offered as evidence of cultic practices, their location is more likely to reflect their intrinsic value. The absence of oxhide ingots in religious contexts in the Mycenaean heartland would also preclude this hypothesis.

One vessel however, the rhyton from **Nuraghe Antigori**, is of a type often found in religious contexts in the Mycenaean heartland. Decorated with a vertical whorl shell (FM 23) and hybrid flower (FM 18B), it has close parallels with a rhyton from tomb 70 at Enkomi on Cyprus (Murray *et al.* 1900, fig. 75, 1114).[1] Parallels with Enkomi are not surprising if indeed we accept the origin of the oxhide ingots as being Cypriot (for a discussion of their origin see 4.3.2). These oxhide ingots are likely to have arrived at Nuraghe Antigori, as the main trading port for the island, before being distributed further. It is possible that objects like the rhyton may have been included in such a cargo and then have been acquired as a curiosity, rather than reflecting any desire to reproduce Mycenaean religious practices.

5.1.2 Social Organisation

There is much evidence of change in settlement planning from Nuraghic II through to Nuraghic III, with a move from open undefended sites to more defensible positions (3.3). The same need for defence can be seen in the development of the Nuraghe themselves, with a progression from single tower structures to the multi-roomed and heavily fortified 'complex nuraghe' and 'proto-castles' (see Figs 3.2-3.5). In some cases villages grew up surrounding the nuraghic complexes and forming proto-towns, such as at Su Nuraxi, Barumini. This increase in fortification could reflect a need for protection

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[1] Dating of this vessel has proved problematic. The *filled body* of the whorl shell and the *degree of disintegration* of the hybrid flower are suggestive of a LH IIIB1 date, when both motifs were popular (Mountjoy 1986, 95). It has been published as LH IIIB1 on the basis of these criteria (Ferrarese Ceruti 1981, fig. M4; 1982, pl. 63,5; Lo Schiavo, Macnamara & Vagnetti 1985, 7; Zerner 1993, 149, fig. 4; Lo Schiavo & Vagnetti 1980, Tav 2:2; Vagnetti 1986, LXIII). The paint, however, is very lustrous (Fig 5.1) and since this particular combination of decorative elements first appeared on rhyta at the end of LH IIIA2 (Mountjoy 1986, 69). The rhyton should accordingly be assigned to LH IIIA2.

against increased numbers of outsiders, or simply have resulted from internal rivalries. In any case it is one of the many indicators of the increasing social stratification and may be associated with the desire to demonstrate status and individuality. While these changes took place after the first contact with the Mycenaean world in LH IIIA and may have resulted from the impetus provided by trade, there is no evidence as yet to link this conclusively as cause and effect.

This development towards urbanisation can be seen particularly during Nuraghic III, when a number of settlements play a significant role as 'central places' for a region. This can be seen clearly at the nuraghic village of **Funtana Ittireddu**, which appears to have acted as the central authority over 118 other nuraghic sites in the mineral rich plateau between the Riu Mannu of Pattada and the Riu Mannu of Ozieri (Galli 1991, 34-37; cf. also Webster 2001, 4-8 on the similar role of **Duos Nuraghes** in Borore), reflecting perhaps the *floruit* in metallurgy that occurred during the same period and also illustrated by numerous oxhide ingot fragments and other imports at this site (5.1.7, with Table 5.1). At **Antigori** as well, a case could be argued on the basis of the long-standing contact with the Mycenaean world from LH IIIA onwards that urbanisation in this district is related to this trade. However, to err on the side of caution, none of these sites has been included in the tabulation of all the characteristics in Table 5.4.

While this change can only be linked tentatively with Mycenaean influence, it is important to remember that similar changes were also occurring in other areas of the western Mediterranean at this time. Sicily in particular provides good evidence to suggest that contact with the Mycenaean world produced a change in the social organisation of the indigenous population (5.2.2). Since Sardinia also appears to have conducted fairly regular trade with Sicily and the Italian mainland (Ferrarese Ceruti 1981a; 1981b; Lilliu 1988; Vagnetti 1993a; 1996b) it is also possible that some of the changes within its society resulted from the impact of this trade and were accelerated as a result of parallel developments in the two regions.

5.1.3 Funerary customs

While there is evidence from the differing styles and wealth of graves that new funerary practices were emerging which mirrored the changes occurring in social organisation, with only a single possible exception, Mycenaean pottery has not yet been found in any of the tombs on the island. It has been reported, however, that a cup of possible

Mycenaean manufacture[2] was found in a burial cave at the site of Nuraghe **Antigori**, but little else is known of this deposit (Ferrarese-Ceruti & Assorgia 1982, 176). Unless new finds alter this picture, it seems unlikely that contact with the Mycenaeans affected the local burial practices in any way. There are no tomb structures that can be likened in any way to grave types used in the Mycenaean heartland, such as the chamber tomb,.

5.1.4 Agriculture

There is some evidence to suggest that the ox-drawn plough was introduced in the Nuraghic III period in the Ittireddu region where a leather yoke cushion was found (Galli 1991; Webster 1996a, 116-117). Certainly the use of a simple ard is attested by the same period (1300-1100 BC). Although no plough shares have yet been found in Mycenaean levels in the Aegean (whether these were fire hardened wooden plough shares or metal ones), the practice of using oxen for ploughing is suggested by Linear B tablets from Pylos and Knossos, which mention both oxen and 'yoke-men' who are presumably the drivers of ox teams (Chadwick 1976, 127; Halstead 1999, 321). It is not inconceivable, therefore, to suggest that its introduction in Sardinia resulted from information gained, perhaps, from Mycenaean traders. The use of oxen for ploughing would also imply a change in agricultural practices, suggesting a move from smaller plots to larger cultivated areas. To support fully an argument for changes such as these, a study of the archaeobotanical material from the region is needed.

Fragments of large imported storage vessels have been found at **Antigori** (see below 5.1.8), but it has been suggested that these may have reached Sardinia as transport containers for other vessels, such as those found on the Kaş wreck[3], rather than as containers for grain. While changes in agricultural practice must have occurred during Nuraghic II and III, no large storage facilities have been found to support the presence of any type of redistributive economy on the Mycenaean pattern.

5.1.5 Defensive provision

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[2] Vagnetti has expressed doubts about the identification of this cup as Mycenaean and suggests it is of local manufacture.

[3] It may be noted that Cypriot White Slip Ware milk bowls were found in Sardinia, not unlike those found packed in pithoi on the Kaş wreck (see 4.3.1). Analysis of fragments of these pithoi has suggested a Cypriot source, among others.

Apart from the evidence that during the course of Nuraghic III some nuraghi became heavily fortified complexes, no Mycenaean-style circuit walls have been found in Sardinia. This suggests that while contact with the Mycenaeans may have provided the impetus for the gradual urbanisation in the region, resulting in a need to protect and mark the boundaries of 'proto-cities' (Webster 2001, 7, fig. 1.5), this does not extend to the adoption of Mycenaean building techniques.

5.1.6 Architecture

For many years it has been debated amongst scholars whether the Nuraghe were influenced by the Mycenaean tholos (Taramelli 1918; Lilliu 1958; Contu 1981; Bernardini 1983; Gras 1985; Ugas 1987; Santillo Frizell 1987; 1989; Belli 1992). Their development has already been addressed in Chapter 3, but the chronological changes are best seen at the site of Antigori, which has been excavated with particular care and where a complete stratigraphic sequence has been established (Ferrarese Ceruti 1979, 244-247). Excavations in the central tower, which have produced a fair amount of Mycenaean pottery, have proved conclusively that a simple nuraghic structure existed at the site *before* the earliest contact with the Mycenaean world.

The basic structure of a nuraghe with its dry-stone walling cannot therefore have been influenced by Mycenaean tholoi. This was further confirmed by a study conducted by W.W. Cavanagh and R.R. Laxton, which demonstrated the different mathematical principles and engineering methods used by the nuraghic builders (Cavanagh & Laxton 1987a; 1987b). Santillo Frizell (1989, 143-161) finally put to rest the hypothesis that the nuraghe were inspired by tholos tomb construction in the Mycenaean heartland by concluding with reasoned argument that dry masonry domes could develop autonomously according to a variety of environmental conditions.

Not as numerous as the nuraghe, but distributed throughout the whole of Sardinia, is a further category of structures that has been claimed to indicate some relationship with the Aegean. These are the *pozzi sacri*, the 'sacred wells' of Sardinia (Lilliu 1958; 1982; Contu 1981; Santoni 1985; Belli 1992), which were first constructed during the Late Bronze Age (Lo Schiavo 1981a; 1986). The well complexes are generally built underground using fine ashlar masonry and consist of a staircase descending to the level of the spring chamber which is itself contained within a beehive vault. A courtyard lined with stone benches like that at **Serri** (Belli 1992, fig. 1a) surrounds some sacred wells. Belli suggests in his article (1992) a number of structures in the Aegean with a similar

function including the springs at Mycenae (Karo 1934), Tiryns (Kilian 1988), Corinth (Hodge Hill 1964) and Kos (Ross 1850). None of these, however, can be cited as true parallels and they seem unlikely to be the source of inspiration for the Sardinian wells. Indeed the spring that bears the most resemblance to those on Sardinia is the *Brunnentempel* at Garlo in Bulgaria (Mitova-Džonova 1983) which is dated to the Late Bronze Age on the basis of a single sherd found near the entrance. This similarity, although striking, can only be coincidental.

Although the term megaron has been applied to large central rooms such as at Nuraghe s'Arcu 'e is Forras, these share no stylistic traits with the Mycenaean megara and it seems that contact with the Mycenaean world did not affect the indigenous style of architecture in any way.

5.1.7 Metal working

The numerous finds of objects of metal belonging to other Mediterranean cultures attest to the very great role that Sardinia played in the Mediterranean trade network at different times during the prehistoric period. What might have instigated trade with this area in particular - the exploitation of the natural resources available on the island or a more systematic desire to colonise the island?

There are numerous copper, lead and iron deposits located in various regions of Sardinia (Marcello *et al.* 1978). While these deposits differ in terms of richness, origin and type of ore, it is now known that the local communities exploited many of them as early as the Late Neolithic period, in the context of the Ozieri culture. Silver too, has been found in its natural state, but only at a depth that was inaccessible to prehistoric man with the techniques available to him. It was therefore necessary to extract silver from lead ores by way of the complex metallurgical processes of desulphurisation and cupellation. The presence of litharge, as well as copper slags in complexes which may have been used for the smelting of copper, dating back as early as the Late Neolithic at Su Coddu (Lilliu 1986, 8; Lo Schiavo 1989, 283), is therefore of considerable importance. Tin, or at least cassiterite deposits from which tin may be extracted, have been identified in SW and SE Sardinia, but it has not yet been established whether these deposits were actively mined in antiquity (Webster 1996, 141-142; Rowland Jr. 2001, 54). If indeed they were exploited at the time of Mycenaean contact with the island it may then have been the tin, as an essential component of bronze, that attracted trade with the area. While metal

objects become relatively more frequent in later contexts, it also appears that the situation changed considerably, particularly after 1650 BC.

At this time Sardinia became an important link in international trade and perhaps as a result of this a new impulse was given to metallurgy. The 'bronze weapons complex' discovered in **Ottana** produced weapons that appear to have affinities with Cypriot objects from the middle of the 2nd millennium BC. It was also at some point during the Sardinian Middle Bronze Age that copper ingots, of both the oxhide and bun forms, characteristic of the metal trade in the eastern Mediterranean were introduced (Giardino 1997, 305). Many of these ingots carry the same incised signs as found on ingots in other parts of the Mediterranean. These are discussed and tabulated in Tables 5.1 & 5.2 below.

Though no clear date can be established for this introduction, it has been suggested, in Sardinia at least, that it is likely to coincide with the construction of Nuraghic towers in the 15th Century BC. The discovery of fragments of five oxhide ingots under the floor of the central room of the Nuraghe complex at **S. Antioco di Bisarcio** had been offered as confirmation of this hypothesis (Lo Schiavo 1990, 20-21, 36-37). A recent study of the containers in which many of the ingots were found has suggested in many cases a *deposition* date of the 13th century or later (Lo Schiavo 1998; Vagnetti 1998c), but full publication of the details is still awaited.

The hoard of oxhide ingots from **Funtana Ittireddu** demonstrates their importance in the local culture. Excavations at this nuraghe revealed in the entrance corridor a hoard of c. 20kg of copper and bronze stored in a large four-handled jar which had a clay carinated bowl for a lid. The hoard consisted of several bun ingots of local ores or re-melted tools, 27 fragments of imported oxhide ingots and five pieces of bronze 'votive swords'. While there was no evidence of metallurgical activity in rooms adjacent to this, stone moulds, crucibles and a knife were found in levels identified as coming from upper storey rooms (for analyses etc. see Galli 1985; 1991; Webster 1996, 115). In addition to this a structure identified as a metal-smelting furnace was excavated in the village outside the nuraghe (Galli 1991, 34-37). The cumulative evidence from both the nuraghe and its surrounding village implies the presence of a metal workshop, using not only local but also imported ingots to produce local and Aegean-style objects.

There is abundant evidence of a similar nature in other areas of Sardinia, as one might expect from an island rich in natural mineral resources, suggesting this coexistence of local and imported metallurgical traditions. Smithing tools, such as the fire tongs from

Siniscola, **Fertilia** and **Sera Orrios** and the hammers from **Nuchis** and **Perfugas**, mirrors, metal vessels and attachments and bronze figurines appear to have been manufactured locally from imported ores and share striking similarities with Cypriot types (Lo Schiavo 1982, 227; 1985, 30, fig. 6; Lo Schiavo, Macnamara & Vagnetti 1985). Indeed the hammers are mainly solid and chunky 'sledgehammer' types which could have been used for the breaking/cutting up of the oxhide ingots. To date this type of hammer has been found only in Cyprus and Sardinia and could be a further indication that just as they imported oxhide ingots they also imported the tools necessary to manipulate them. Other hammers include the small double hammers which were mostly used for the fashioning of bronze vessels (Lo Schiavo, Macnamara & Vagnetti 1985, 22).

A particularly fine example of this shared relationship between Cyprus and Sardinia in metallurgical tradition is the so-called charcoal shovel. These shovels have long twisted handles and square sided blades and are usually cast in a single piece. One of the three examples from the Enkomi Foundry hoard (Catling 1964, 101, pl.10 c-e) is so similar in dimensions to one from **Oristano** (Lo Schiavo 1984) in Sardinia (Fig 5.2a) that it has been suggested it was imported from Cyprus (Lo Schiavo, Macnamara & Vagnetti 1985, 26). A further fragment from **Oliena, Sa Sedda 'e Sos Carros** seems to be identically proportioned. More significantly a steatite mould, with a form for a charcoal shovel, has been found from **Irgoli** (Fig 5.2a), which not only shows how they were cast, but confirms their manufacture in Sardinia as well.

This contact with the eastern Mediterranean is thought to have also resulted in the introduction of iron working to Sardinia. A fragment of worked iron, found in an undisturbed 12th century Bronze Age level of the upper room of torre C in Nuraghe **Antigori** and associated with a pottery wish-bone handle of supposed Cypriot type and Aegean-style sherds, is cited as the earliest evidence of iron in the western Mediterranean (Ferrarese Ceruti 1986, 185, fig.4.5; Ferrarese Ceruti *et al.* 1987, 24-25; Lo Schiavo 1988, 86-89). Since Sardinia is itself rich in iron ores, it may have been the search for these that maintained trade with the area even late in the Mycenaean period.

Many of the finished products, even those made locally, seem to have close affinities with the metal work of Cyprus (Matthäus 1988; Vagnetti & Lo Schiavo 1989). Locally-made 'Cypriot' tripod stands[4] have now been identified at a number of sites in different parts of Sardinia (Fig 5.3). They are fashioned using the lost wax technique, which is

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[4] Analysis of the tripod stand from S. Maria in Paulis, Ittiri determined that the ore used was Sardinian, from the Nuoro region (Gale & Stos-Gale 1988, 363.)

said to have been introduced to the island as a result of the metals' trade (Macnamara *et al.*, 1984; Lo Schiavo *et al.* 1985; Vagnetti & Lo Schiavo 1989; Vagnetti 2000, 313). Several fragments from two bronze tripod stands were found in preliminary rescue excavation of **Nuraghe s'Arcu 'e is Forras** (Lo Schiavo, Macnamara & Vagnetti 1985, 227-230), including a short section of a ring with zig zag pattern (Fig 5.3b), which is similar to the **Oristano** tripod stand (Fig 5.3a). A small tripod from the **Pirosu-Su Benatzu** cave (Fig 5.3c) seems to have had a Cypriot archetype, if not actually manufactured in Cyprus (Lilliu 1973, pls I-III; Lo Schiavo, Macnamara & Vagnetti 1985, 42-43). To these local products must also be added a further miniature tripod (Fig 5.3d), from **S. Maria in Paulis** near Ittiri, which is now in the British Museum (Von Bissing 1928, 87-89; Matthäus 1988, 289, fig 5.12). A parallel for the zigzag ring is from an unknown provenance in Cyprus (Fig 5.3f), and a tripod from Kaloriziki provides a parallel for the spirals and bird decoration on the Oristano tripod (Fig 5.3e).

At **Nuraghe s'Arcu 'e is Forras** quantities of raw metal, slag and ingot fragments, both oxhide and bun, were found scattered around a large bronze cauldron, which itself had been patched extensively in antiquity before being smashed, in the 'megaron' building (Vagnetti & Lo Schiavo 1989, 236). Around the cauldron itself, as well as in other areas of the complex, were a number of slabs with regular sets of holes cut into their upper surfaces. The remains of lead filling in a number of these holes led to the suggestion that these were for the insertion and display of votive bronzes. The presence of not one, but two tripod stands, one of the most characteristic prestige objects of the eastern Mediterranean in this 'megaron' structure is highly suggestive of the importance of foreign goods to the local Nuraghic elite in some ceremony of feasting or other social occasion when they would serve as focal points of display. The question of whether they were imported from Cyprus itself or made locally by 'visiting' or settled Cypriot craftsmen remains open.

The intensity of the scale of native copper production is indicated by the large quantity of hoards discovered on the island, numbering some 50 to date, as well as a number of individual pieces. The majority of finished products seem to have no relation to Aegean types (Giardino 1998 *pers. comm.*). The quantity of slag found in Sardinia is not particularly substantial, which would suggest that Sardinia used smelting techniques that were different from those used in Cyprus and the Middle East and may be characterised essentially as 'non slagging' techniques (Giardino 1996, 307).

Oxhide Ingots

The first ingots to be found in the Mediterranean were the 5 ingots from Nuraghe Serra Ilixi in 1857 (Lo Schiavo 1982, 271; 1999, 499). Since no others had been identified they remained unrecognised for what they were and some were even sold as scrap metal by dealers. Since the early part of the 20th century many further discoveries of oxhide ingots have been made on the island (Table 5.1, Fig 4.18), which now number over 50 individual fragments in different states of preservation.[5] It is to be noted that a large number of these oxhide ingots were in fact found in local bowls or jars (Fig 3.6d-e), suggesting that these objects were so valuable that even the scraps were gathered together for future use (see Budd *et al.* 1995 on recycling of oxhide ingots). In some cases they were placed under the floors of nuraghe, and have therefore been interpreted as foundation offerings (Lo Schiavo 1990, 20-21, 36-37). The quantity and particularly the location of the ingots throughout the island, both on the coast and inland, has generated much interest and the question of their origin has become a crucial problem, while the date of their first appearance remains uncertain.

The earliest copper oxhide ingots in the Mediterranean are attested from Crete (Agia Triada, Gournia and Zakros), perhaps dating to LMIA (*inter alia* Buchholz 1959, Tafel 3,4; Betancourt *et al.* 1978) and depicted on Egyptian tomb paintings dating to the reigns of Hatshepsut and Tutmosis III (c.1504-1450). Later depictions of ingots date to the reigns of Amenhotep II (1453-1419), Tutmosis IV (1419-1386), Akhenaten (1350-1334) and Ramesses III (1182-1151), to which can be added the ingots from the two shipwrecks already mentioned and ingots found in Cyprus, Crete, Sardinia, mainland Greece and the Black Sea coast. More recently excavations at Quantir, Piramesse on the Nile Delta, have recovered a fragment of an oxhide ingot (Pusch 1990, tav V,b).

The Egyptian tomb paintings show ingots, either carried on the shoulders of men, as items in storerooms, or as raw materials in workshops. At the tomb of Rekh-mi-re, for example, copper ingots are brought by 'the chiefs of Keftiuland and the islands which

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[5] The table of copper ingots has been compiled from the following sources which address general issues of date and origin, and checked against the original site publications where possible – Buchholz 1959; Stech Wheeler *et al.* 1975; Muhly *et al.* 1977; 1988; Lo Schiavo & Vagnetti 1980; Gale & Stos-Gale 1987; Lo Schiavo 1989; 1990b; 1999.

are within the Great Seas' (Davies 1935; Bass 1967, 63). From this one might infer trade directly with one prime source of the metal, Cyprus, but the question still remains concerning the identity of the traders. This is the only tomb where a direct link may be made between Aegean traders and oxhide ingots, and depictions in other areas show that the Egyptian painters, at least, assumed the trade to be in the hands of Syrians, as at Hepu (below). It must be noted, however, that these representations of Syrian traders date to no later than 1350 BC and naturally cannot exclude the possibility of Mycenaean traders in other parts of the Mediterranean (Gale 1988, 321).

Ingots are shown in storage from the Tomb of Meryra I at Tell El Amarna. On the east half of the south wall in the tomb of Rekh-mi-re is a scene of Egyptian bronze workers casting a door. Ingots are clearly being placed in the fire (Davies & Faulkner 1947). This same scene can also be seen in the tomb of Hepu at Thebes (Bass 1967, 65).

Documents from Tell El Amarna provide further information on the considerable value of copper ingots and list them in the same contexts as high-status items for which they may sometimes be exchanged.

> *'Thus speaks the King of Alashiya (Cyprus) to the king of Egypt, my brother... And (with) that (present) I have sent to you, by my messenger, 100 (talents of) copper. Moreover, may your messenger bring goods: one bed of ebony (decorated with) gold, ... one shuhitu (chariot), (decorated) with gold; and two horses; and two pieces of linen; and 50 linen shawls; and two linen gowns; and 14 (beams?) of ebony and 17 jars of 'good' oil; and from the royal linen, four pieces and four shawls.'* (Letter I 34: 1-2, 16-26)

The Knossos tablets provide further information on the weights of ingots. Tablet Oa 730 lists 60 ingots weighing in total 52 2/30 talents while Tablet Oa 733 lists 10, presumably smaller ingots, weighing 6 or possibly 8 talents, but the tablet is broken at this end (Chadwick *et al.* 1986, 277). Chadwick has calculated that a talent is equivalent to 30kg (1976, 142) which would make individual ingots as listed on Oa 730 approximately 26kg, and those on Oa 733 approximately 18kg.

This discrepancy in the weight is not unusual and suggests that they may well have been regularly cast in different sizes. The ingots found on the Cape Gelidonya shipwreck for example, vary between 10-37kg (Gale 1988, 198). Work on the ingots found at Agia Triada on Crete has shown a similar weight difference (Buchholz 1959, 32). To date, however, only one mould for the manufacture of oxhide ingots has been found, at the Late Bronze Age palace of Ras Ibn Hani, south of Ugarit (Lagarce *et al.* 1983, 257-289).

The ingot fragments from Sardinia (and indeed those from Sicily and Lipari - 5.2.7) are no different from examples from the eastern Mediterranean. Indeed the presence of marks in Cypro-Minoan script on several of the Sardinia ingots (Lo Schiavo 1984, 32) confirms this similarity. Seven ingots have marks inscribed on their surface and two from Sierra Ilixi have marks on both sides. These are set out in Table 5.2 beside the marks from other ingots, particularly those found in the Cape Gelidonya wreck (Bass 1967, 72).

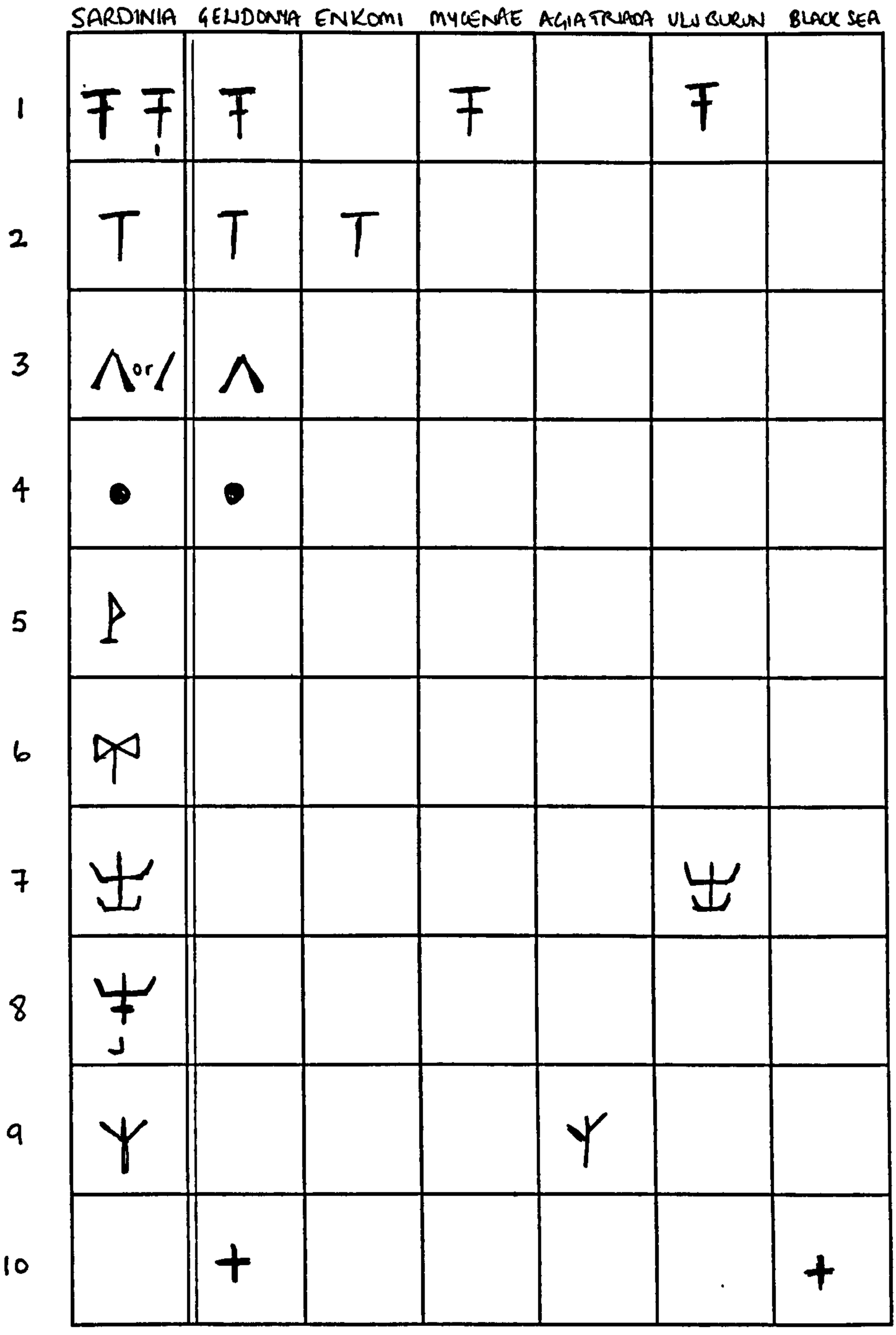
The provenance of the Sardinian ingots is a matter of fierce debate. Were these produced from local ores or imported from the Mycenaean region or beyond? To cite only two of the protagonists, Giardino (1996) has argued at one extreme that the bun and oxhide ingots are all of local manufacture from local ore sites whilst the work of Gale and Stos-Gale at the Oxford Isotrace Laboratory at the other has shown that the isotope ratios of oxhide ingots are compatible with those of Cypriot ores (Gale 1991b, 217; Gale & Stos-Gale 1987; 1991; 1992; Stos-Gale *et al.* 1997). Analysis of copper ores from Sardinia, particularly from the Calabona mine, has excluded this as the source of the Sardinian oxhide ingots and strengthened the argument that they were smelted from copper ores from Cyprus (Gale & Stos-Gale 1999, 272). The bun ingots, on the other hand, such as those from Villanovaforru-Baccu Simeone, are consistent with Cambrian copper ore deposits in south west Sardinia (Gale & Stos-Gale 1986, 161-163). Certainly there is substantial evidence to support local production of metal artefacts (Becker 1980, 91-117; Lo Schiavo 1986, 231-250). In any case recent research suggests that the ore deposits in Sardinia accessible in the LBA were too small to sustain the quantity of copper needed for the production of the large number of ingots recovered, even without taking into account that they surely represent only a fraction of the true number of ingots manufactured (Gale & Stos-Gale 1999, 272 & fn. 37).

	Context	Ingots		Condition	Pottery	Moulds	Other finds	Comments
		oxhide	plano-convex					
Abini – Teti (Nuoro)	Sanctuary site	1		Frag	EIA			
Alghero –Porticciolo (Sassari)	?	1		Frag				
Arzachena – Albuccio	Nuraghe	X		Frags				Found in vase under pavement of terrace
Assemini	?	X		Frags				Casual find, also steli with signs
Belvì- Ocile Nuoro	Nuraghe	x		Frags				
Cappoterra	Nuraghe	1		Frag				
Dorgali (Nuoro)	?	1		Frag				Private collection
Fonni – Gremanu (Nuoro)	Nuraghe	X		Frag				
Ittireddu (Nuraghe Funtana)	Nuraghe	27	local	Frags		X		Found in vase (20kg) with votive swords
Lanusei Perda'e Floris	Nuraghic village	1		Frag			Amber beads	Casual find
Nuoro province	?	3		Frags				Casual find
Nuraghe Nastasi di Tertenìa	Nuraghe	1		Frag	LH IIIC			
Nuraghe Tedde	Nuraghe	2		complete				Found under central pavement of Nuraghe
Olbia – Serra Elveghes	Nuraghe	25		Frags				Found in vase
Orosei province	?	X		Frags	LH IIIB			
Ortueri Funtana'e Cresia	Nuraghe	X		Frags				
Oschiri – S.Giorgio (Sassari)	Nuraghe	9		Frags				
Ottana	Nuraghe					X		
Ozieri	Nuraghe	X		complete				Found under pavement
Pattada – Sedda Ottinnera	Nuraghe	7		Frags				Found in vase
S. Antioco di Bisarcio (Ozieri)	Nuraghe	5		1 extant				Found under pavement of main tower
Sa Mandra'e Sa Guia (Ossi)	Nuraghe	X		Frags				
S'Arcu'e is Forras	'Megaron' temple	2	x	Frags			2 tripod stands	Raw slag, metal working tools etc

TABLE 5.1 OXHIDE INGOTS IN SARDINIA

	Context	Ingots		Condition	Pottery	Moulds	Other finds	Comments
		oxhide	plano-convex					
Sardara - Anastasia (Cagliari)	Nuraghic village	12		Frags				Hoard in vase
Serra Ilixi (Nuraghus)	Nuraghe	5		3 extant				2 sold to coppersmith, subsequently destroyed
Seùlo – Is Fossus (Nuoro)	Nuraghe	1		Frag				
Siniscola – Luthuthai (Nuoro)	Nuraghe	2		Frags			Tongs	
Soleminis (Cagliari)	?	4		Frags				
Sorgono	Nuraghe		17	Frags				
Tharros	Nuraghe		1	Frag				Slab ingot
Trieri - Bau Nuraxi (Nuoro)	Nuraghe	x		Frags				
Villagrande Strisàili	Nuraghe	12		Frags				
Villanovaforru -Baccu Simeone	Nuraghe	10		Frags				Found in vase

TABLE 5.1 OXHIDE INGOTS IN SARDINIA



1	CORTE ACCA/ABINI TETI	6	SERRA ILIXI
2	OZIERI	7	SERRA ILIXI
3	SARDARA	8	S. ANTONIO DI BISACCIO
4	SERRA ILIXI	9	SERRA ILIXI
5	SERRA ILIXI		

TABLE 5.2 COMPARISON OF MARKS ON SARDINIAN OXHIDE INGOTS WITH THOSE ON INGOTS FROM OTHER AREAS

Although it is natural to suppose that a search for copper was one of the impetus which led Mycenaean trades to the western Mediterranean, there is no sign, from analysis conducted so far, that Sardinian metal reached the Aegean. The question of the provenance of the oxhide ingots is directly related to the interpretation of their significance for processes of acculturation. If, not withstanding the analytical evidence, these were ingots produced by local craftsmen from local ores, then the shape, and the standardisation of the weight would point to strong influence from Mycenaean Greece sufficient to change local tradition. If, however, as seems more probable, they are imports from Cyprus, they would indicate a high level of contact and raise the further question of why an island relatively rich in copper ores should see the need to acquire raw materials from the opposite end of the Mediterranean. In this case they would provide no evidence of direct influence on the indigenous population. Ingots were, after all, only melted down to create some other item.

Trade in oxhide ingots is not confined to the Mediterranean. Two ingots are reported from the Bulgarian Black Sea coast, one found in the sea near Sozopol and the other at Čerkovo (also Tcherkovo) in the Bourgas region (Kavaitov 1978; Harding 1984, 49; Stos Gale *et al.* 1997; Neimeier 1998). The latter is described as having a mark in the rough form of a cross, similar to signs found in Linear script and on ingots from the Cape Gelidonya shipwreck (Hiller 1991, 209-210). It is however, poorly published[6] and the other is small in size. There is also a prism seal bearing a Linear inscription and a pictogram of a ?ingot from Drama, a prehistoric settlement near Bourgas in Bulgaria (Silver 1995, 145), suggesting that this may well be an area which deserves further investigation. There are said to be a further two ingots from this area (Kiliç, *SOMA* 1998 *pers. comm.*) but these as yet are unpublished. As is the case with Sardinia it is intriguing to find indications that long-range maritime trade supplemented the rich resource of copper ores in the Carpathian mountains, which had supplied this region for many centuries.

The fragments of ingots found in Turkey confirm the widespread distribution of these items but probably reflect different trade mechanisms, since they occur at inland sites. These include a small fragment of an oxhide ingot, only 200g in weight, from Sarköy in north eastern Anatolia, dated so far, to between the 12th and 11th century BC (Lo Schiavo 1999, 501) and a fragment from Boğazköy the capital of the Hittite empire

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[6] It is described as large in size and similar to those found at Agia Triada (Wardle, D., *pers. comm.).*

(Harmankaya 1994; Stos-Gale *et al.* 1997).[7] There is no immediately obvious reason for the presence of so many Cypriot ingots in Sardinia when local resources (and those of Etruria, a short sea voyage away) would be the most logical supplies. It could be argued that, despite the distance, maritime trade was more 'cost-effective' than even the short overland routes from the mountains to the coast. This would only be realistic if a 'return' cargo was available but at present there is nothing to suggest what Sardinia might have had to offer in the way of raw materials or products. Another hypothesis could be that the cargoes from the Aegean or Cyprus contained other, prestigious, items which justified the long voyage and 'covered' the cost of loading the copper ingots. It seems less probable that the ingots themselves were prestige items, although some of the copper objects, such as the Cypriot shovels and tripods may well have been viewed in this way.

5.1.8 Pottery manufacture

The earliest pottery to be imported to the island dates to LH IIIA2. This includes the rhyton fragment already discussed in 5.1.1 and a fine straight-sided alabastron from **Nuraghe Arrubiu di Orroli** (Fig 5.4). While the spread of Mycenaean pottery throughout the island is limited, it has been established that from LH IIIB at least, Mycenaean pottery was imitated by local potters at nine sites (Table 4.1). Unusually, LH IIIB and C coarse ware vessels were also copied locally (Jones & Vagnetti 1991, 132-134). This local imitation of fine and coarse wares can be seen particularly at Antigori where the quantities of pottery recovered are by far the greatest. Eighty samples of both categories were examined chemically and seventeen petrographically from **Antigori**, **Domu s'Orku**, **Orosei** and **Pozzomaggiore** (Jones 1986b).

The results formed two clusters, one for imported ware and one for locally-made ware. Locally-made Mycenaean fine ware from Sardinia is identifiable visually by its coarse brown fabric, and analysis has revealed an unusual composition with a very high iron and nickel content (Jones 1987, 259). All the examples analysed from **Pozzomaggiore** have been confirmed as imports, including a fragment of a large storage container. The few samples from the **Orosei** region also seem to have been imported. Jones argues that these samples should be assigned to the northern Peloponnese on the basis of similarities between these and samples from Mycenae (Jones 1986a, 213). It also seems likely that the samples from Pozzomaggiore could be assigned to the same region.

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[7] These may have been on an extension of Black Sea trade since both sites are more accessible from the north coast of Anatolia.

Certainly the straight-sided alabastron from the central tower of Nuraghe Arrubiu (Fig 5.4), which underwent analysis by spectrometry, appears to have been imported from the north east Peloponnese (Lo Schiavo & Vagnetti 1993, 121-49). Indeed imports from the Peloponnese account for over 68% of the imported wares (Vagnetti 1994, 50).

A coarse ware stirrup jar from **Antigori** (Fig 5.32b & c; Ferrarese Ceruti 1982a, tav. LXIII, 10) may well have its origin in the north east Peloponnese, while other samples from Antigori and Domu s'Orku seem to be more consistent with a Cretan origin. Several coarse ware stirrup jars have been found in Sardinia suggesting that this was a popular imported vessel (Jones & Day 1987, 257-270; Vagnetti & Jones 1988, 335-348; Jones & Vagnetti 1991, 127-147). In the Aegean these are usually considered to be oil transport jars and their frequency in Sardinia may reflect the regular import of Aegean olive oil. This is another indication of the demand for 'exotic' goods and materials created by the emergence of a prosperous local elite. The only archaeobotanical evidence for the olive in Sardinia is a probably undomesticated form from Duos Nuraghes (Webster 2001, 121).

A rope-patterned pithos sherd from Antigori Vano A is of a type well documented in Crete and there is some resemblance between its chemical compositions and those of clays and pottery from modern kilns in the region of Archanes (Jones 1987, 259). A further pithos fragment from Antigori with a wavy band decoration (Fig 5.5) was found to have high magnesium and chromium content with low nickel. This chemical composition is shared by a pithos fragment of suspected Cypriot origin from Kommos in Crete (Jones 1986b) but further analysis of the Antigori pithos has suggested local manufacture (Vagnetti 1998). Three further fragments of pithos in Antigori Room P had been used upside down as paving slabs on a floor together with stones. Decorated with incised horizontal and wavy bands, they are stylistically similar to LC II and LC III examples from Cyprus (Lo Schiavo, Macnamara & Vagnetti 1985, 221). The three fragments were also analysed by Jones and Day, who found that the composition of the pithos fragments matches examples from southern-central Cyprus, particularly Maroni and Agios Dimitrios (Jones & Day 1987). As already noted (5.1.4), jars of this kind were multi-functional transport containers.

Another particular feature of the Sardinian-made Mycenaean pottery is the decoration of the inside rim of some vessels with slashes of paint, for example on a LH IIIC deep bowl (Fig 5.6a) from Antigori (Ferrarese Ceruti 1981b, M8; Vagnetti 1986, LXIV, 3; Zerner 1993, 150, fig. 7). A number of examples of this particular decorative feature are known from Sardinia and a selection of these is illustrated in Fig 5.6. This particular

style of decoration is unknown from the Mycenaean heartland at present and must therefore reflect a local preference.

A fragment of a shallow cup (Fig 5.6c), decorated with either a wavy band or, just possibly, a stemmed spiral, could be dated as early as LH IIA on the basis of its rim shape. If this cup is indeed early, it would make it the earliest evidence for contact with the Mycenaean world. This would have significant impact for analysis of the level of acculturation on the island. However, the fragment is of local manufacture, small and part of a group of bowls with idiosyncratic decoration (Fig 5.6). Since the evidence from other areas such as Italy suggests that the production of local Mycenaean did not begin in bulk until LH IIIB, it seems unlikely that the picture would be different in Sardinia with local production from as early as LH IIA. It seems more likely that this cup was manufactured some time after LH IIIB, perhaps copying a LH IIA cup, which would account for the rim shape.

Another unusual fragment from Antigori is from a krater[8] found in Vano A (Fig 5.7), which has a form of zig zag decoration or perhaps a disarticulated version of the chevron (FM 58). It is reminiscent of Matt Painted ware from northern Greece, though no analysis has been conducted on this fragment.

Mycenaean pottery was clearly valued highly on the island, at least in the possible ports of trade identified in 4.2.1. This is clearly demonstrated by a fragment of a Mycenaean closed vessel from Vano A in Nuraghe Antigori (Ferrarese Ceruti 1981, M7). Though undatable on stylistic terms, the lead rivet attached to part of it (Fig 5.8) clearly indicates that this vessel was important enough for its owner to repair it. It also gives a small insight into the local economy since lead must have been produced locally on a large enough scale to enable a valued pot to be mended rather than thrown away. The presence too, of locally-made Mycenaean at sites further inland such as at Duos Nuraghes in Borore also suggests its value to the local populations. Here fragments of Mycenaean pottery, dating to approximately LH IIIB/C, were discovered on the floor of Tower A (Stratum IX, Webster 2001, 49; fig 4.13, 3) and more interestingly a single fragment was identified in structure 14 in one of the connected villages (*idem*, 67). The presence of Mycenaean pottery not only in the tower which may have been the residence of the 'chief' for the nuraghe complex, but also in a domestic dwelling in the village suggests that Mycenaean pottery was available in limited quantities to all echelons of society.

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[8] This is published as a kalathos in Ferrarese Ceruti (1981, M8).

Ceramica Grigia (Grey Ware) similar to that found at sites on the Italian mainland has also been reported from Antigori (3.3.3). It seems that this and the slate grey ware (*ceramica grigia ardesia*) developed alongside and probably as a consequence of the local production of Mycenaean wares in the southern part of the island only and its manufacture ceased at the same time as Mycenaean wares at the end of LH IIIC. A selection is illustrated in Fig 5.9.

Pottery fashions at Nuraghe Antigori

The material summarised in the Table below (5.3) is the total of the published and identifiable Mycenaean material from Nuraghe Antigori, predominantly from the central tower known as Vano A. While the presence of over 350 pieces of Mycenaean pottery has been reported from the site, only 40 have been described in publication, of which nearly half are of such fragmentary nature that they can neither be dated nor assigned to specific shapes. Still others have come from contexts which are not secure and even from clandestine excavations at the site. As with samples in later sections, the published material has been examined, dated, and classified by shape, where possible, in order to determine whether particular pottery shapes were popular and if differences in preference can be established between different periods.

TABLE 5. 3 MYCENAEAN POTTERY FASHIONS AT NURAGHE ANTIGORI BY SHAPE AND PERIOD

	II A	III A2	III B	IIIB/C1	III C	?	Total
Cup	?[9]		1				2
Cup – carinated						1	1
Deep Bowl			2	1	1		4
Goblet						1	1
Jug			1			1	2
Kraters			2		1	1	4
Kylix			1				1
Rhyton		1					1
Stirrup Jar		1			1		2
Body sherds						17	17
Total	**1**	**2**	**7**	**1**	**3**	**21**	**35**
Pithoi (Cypriot?)			1			4	5

Since unfortunately the majority of the published sherds are too small to date convincingly or assign to a shape, very few vessels enable any conclusions. Most of these come from a single domestic context (Vano A). Almost all of the vessel types present are associated with drinking or storage, a pattern which is repeated at other sites in Sardinia, for example the krater from Orosei (Lo Schiavo & Vagnetti 1980, 375, fig.1). Among these deep bowls and kraters appear to be the most popular form of fine ware vessels at Nuraghe Antigori. This repertoire of shapes present suggests that there was a preference for drinking and storage vessels that complemented, but in no way replaced, the local pottery assemblages. As in other regions of this study Mycenaean drinking equipment seems to be adopted into the social practices of the local communities not just at the coastal centres but also inland.

Sherds from coarse ware pithoi are the most numerous individual items across the site, though it must be remembered that three of these were reused, decorated side down, as paving slabs in a courtyard (Lo Schiavo, Macnamara & Vagnetti 1985, 221).

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[9] See Fig 5.4 and discussion concerning the date of this fragment.

5.1.9 Assessment of Level of Acculturation

As shown in Chapter 3.3 a distinctive social organisation in Sardinia led to the development of unusual fortified complexes indicating a high level of peer rivalry between local leaders, which is reinforced by their megalithic burial monuments. These developments would probably have occurred whether or not external influence had reached the region, but the acceleration and intensification of the process at the beginning of Nuraghic III coincides with the period of maximum Mycenaean contact.

Table 5.4 below summarises the numerical data concerning Sardinia for each of the eight domains of social activity, based on the discussion in the preceding section and data tables in Chapter 4. As outlined in the methodology in 2.7 the number of sites with evidence for acculturation in different areas of social activity is recorded (on the assumption that the more the evidence of a particular phenomenon is repeated, the greater its significance), along with the percentage of all major nuraghic sites that this represents. The final column represents the overall weighted value for each individual sub category of social activity with the weighted value for the area of social activity as a whole for the region under study represented in bold. It is the data from this final column which when compared to the mean value for all the regions represented graphically in Table 5.5 permits an assessment of the relative level of acculturation, whether strong, moderate or weak, for the region. As already discussed (2.7), evidence in the 'higher order' categories (first in the table) is the strongest indicator for significant acculturation. This methodology is applied to all regions in the subsequent sections.

TABLE 5. 4. ACCULTURATION IN DOMAINS OF SOCIAL ACTIVITY IN SARDINIA

Domains of social activity	Number of sites in Sardinia with features	Total number of sites in Sardinia*	% representation	weighting factor category	weighting factor sub-category	weighted value
RELIGION		60				**33**
Belief systems	**0**	60	0	10	4	0
Shrines	**0**	60	0	10	3	0
Cult objects	**1**	60	2	10	2	33
SOCIAL ORGANISATION		60				**0**
Urbanisation	**0**	60	0	8	4	0
central Storage	**0**	60	0	8	3	0
FUNERARY CUSTOMS		60				**0**
Mortuary systems	**0**	60	0	8	4	0
Grave types	**0**	60	0	8	3	0
Grave goods (Mycenaean type)	**0**	60	0	8	2	0
AGRICULTURE		60				**80**
Crops	**0**	60	0	6	4	0
Methods of cultivation	**1**	60	2	6	4	40
Storage methods	**2**	60	3	6	2	40
DEFENSIVE PROVISION		60				**0**
Cyclopean Circuit Walls	**0**	60	0	4	4	0
Fortifications	**0**	60	0	4	2	0

Domains of social activity	Number of sites in Sardinia with features	Total number of sites in Sardinia*	% representation	weighting factor category	weighting factor sub-category	weighted value
ARCHITECTURE		60				**0**
[Religious]	**0**	60	0	4	4	0
Public	**0**	60	0	4	3	0
Domestic	**0**	60	0	4	2	0
METAL WORKING (MYC – CYPRIOT)		60				**400**
Workshops	**3**	60	5	3	4	60
Moulds	**3**	60	5	3	4	60
Finished product	**12**	60	20	3	2	120
Ingots	**32**	60	53	3	1	160
POTTERY MANUFACTURE		60				**147**
Kilns/workshops	**0**	60	0	2	4	0
[Dolii/pithoi/storage vessels]	**0**	60	0	2	3	0
Locally-made Mycenaean coarse ware	**4**	60	7	2	3	40
Locally-made Mycenaean fine ware	**9**	60	15	2	2	60
Grey Ware (Wheel-made)	**0**	60	0	2	2	0
Local/Mycenaean mixed	**1**	60	2	2	2	7
Imported Mycenaean	**12**	60	20	2	1	40

* Based on Webster 1996, 109, see 3.1.3

TABLE 5.5 A READING OF THE COMPARATIVE LEVEL OF ACCULTURATION IN SARDINIA

INDICATORS OF ACCULTURATION	REPRESENTATION		
	STRONG	MODERATE	WEAK
RELIGION **Belief systems** **Shrines** **Cult objects**		◆	●
SOCIAL ORGANISATION **Urbanisation** **Central Storage**			
FUNERARY CUSTOMS **Mortuary systems** **Ritual/Grave Types** **Gravegoods (Mycenaean type)**			
AGRICULTURE **Crops** **Methods of cultivation** **Storage methods**		◆	● ●

STRONG INDICATORS

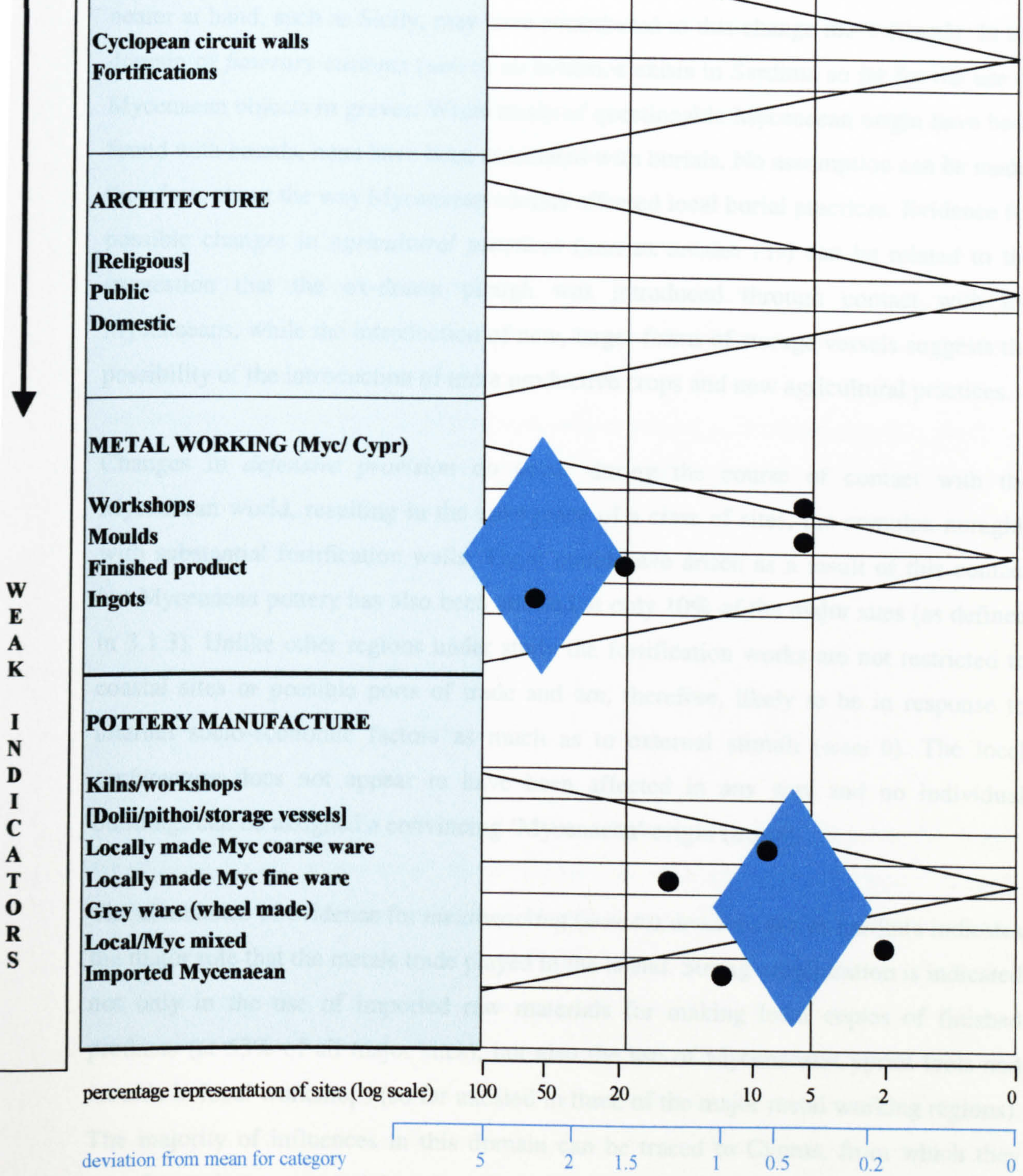
percentage representation of sites (log scale) 100 50 20 10 5 2 0

deviation from mean for category 5 2 1.5 1 0.5 0.2 0

TABLE 5.5 (CONT.) A READING OF THE COMPARATIVE LEVEL OF ACCULTURATION IN SARDINIA

INDICATORS OF ACCULTURATION	REPRESENTATION		
	STRONG	MODERATE	WEAK
DEFENSIVE PROVISION			
Cyclopean circuit walls			
Fortifications			
ARCHITECTURE			
[Religious]			
Public			
Domestic			
METAL WORKING (Myc/ Cypr)			
Workshops			
Moulds			
Finished product			
Ingots			
POTTERY MANUFACTURE			
Kilns/workshops			
[Dolii/pithoi/storage vessels]			
Locally made Myc coarse ware			
Locally made Myc fine ware			
Grey ware (wheel made)			
Local/Myc mixed			
Imported Mycenaean			

WEAK INDICATORS



As the table above shows, at only one site in Sardinia is there any indication of acculturation in the domain of *religion* (score 33, deviation 0.46). This takes the form of a single definable cult object, the rhyton from Antigori. There is no evidence to show that the changes in *social organisation* (score 0) towards urbanisation, required Mycenaean influence. Although this occurred after contact with the Aegean world had been established, at no site can a direct connection between the two be made and sources nearer at hand, such as Sicily, may have contributed to this change more directly. In the domain of *funerary customs* (score 0) no evidence exists in Sardinia so far for the use of Mycenaean objects in graves. While beads of questionable Mycenaean origin have been found with hoards, none have been associated with burials. No assumption can be made, therefore, about the way Mycenaean contact affected local burial practices. Evidence for possible changes in *agricultural practices* (score 80, deviation 1.19) can be related to the suggestion that the ox-drawn plough was introduced through contact with the Mycenaeans, while the introduction of new, larger forms of storage vessels suggests the possibility of the introduction of more productive crops and new agricultural practices.

Changes in *defensive provision* do occur during the course of contact with the Mycenaean world, resulting in the emergence of a class of sites, the complex nuraghi, with substantial fortification walls. These could have arisen as a result of this contact but Mycenaean pottery has also been attested at only 10% of the major sites (as defined in 3.1.3). Unlike other regions under study the fortification works are not restricted to coastal sites or possible ports of trade and are, therefore, likely to be in response to internal socio-economic factors as much as to external stimuli (score 0). The local *architecture* does not appear to have been affected in any way and no individual buildings can be assigned a convincing 'Mycenaean' origin (score 0).

The abundance of evidence for *metalworking* (score 400, deviation 2.68), in Sardinia indicates the major role that the metals trade played in the island. Strong acculturation is indicated not only in the use of imported raw materials for making local copies of finished products (at 53% of all major sites), but also the use of Mycenaean/Cypriot tools and moulds in local workshops (so far attested in three of the major metal working regions). The majority of influences in this domain can be traced to Cyprus, from which they were importing raw materials, rather than the Mycenaean heartland (although as already

discussed the origin of the traders who carried the ores and finished products remains uncertain).

Inevitably, it is in the area of *pottery manufacture* (score 147, deviation 0.46) where the greatest number of changes can be noted, suggesting, however, only a moderate degree of influence. Imported Mycenaean pottery has now been recognised at 12 sites in Sardinia (20% of major sites). It is imported predominantly from the Peloponnese but also from Crete and Cyprus. More importantly for an examination of acculturation, Mycenaean-style pottery began to be produced locally from LH IIIB onwards (at 17% of sites), across a widespread area, and at some sites, such as Duos Nuraghes, the Mycenaean pottery is only of local manufacture. The local production was not limited to fine ware vessels, but included coarse wares, particularly transport stirrup jars and pithoi. Grey wheel-made ware, which is much more important in the southern Italian peninsula, may have been imported from there rather than made at local centres in Sardinia and in any case becomes far more common in the later periods of the Nuraghic civilisation. The repertoire of Mycenaean shapes present at Antigori suggests that there was a preference for drinking and storage vessels that complemented, but in no way replaced, the local pottery assemblages

Response to Mycenaean contact in Sardinia

Sardinian Nuraghi are unique in the Mediterranean area and reflect the highly specialised social organisation which created them. Each of the complex nuraghe represents a considerable investment of resources by the local community, presumably under the direction of members of an elite. The existence of the elite during this period is also demonstrated by the choice of monumental burial structures, while the trajectory of development of nuraghic-based communities seem to indicate local developments based on local traditions. The principal stimuli provided by Mycenaean contact relate to metal-based economic and trade networks. If the results of lead isotope analysis of the oxhide ingots are correct the exploitation of the local ore bodies remained unsystematic,

perhaps partly as a result of the fragmentation of Sardinian society, district by district. Extensive Mycenaean domination would surely have led to a more systematic exploitation and the regular identification of Sardinian copper throughout the central Mediterranean. The adoption of new technologies extended to the manufacture of small quantities of Mycenaean pottery but unusually these have no apparent role in social display or communal activity. The nuraghi and the associated 'urbanisation' formed the basis of Sardinian social organisation for several centuries after the Sardinian Bronze Age, perhaps because they were rooted in local traditions rather than the result of transitory Mycenaean contact and intriguingly of all the six regions of this study it is Sardinia which receives no Greek colonies in the 8th century BC.

5.2 SICILY AND THE AEOLIAN ISLANDS

The first Mycenaean pottery to be discovered in the west was found in a tomb in Sicily in the 1870's[10]. This and subsequent finds have highlighted the important role that Sicily and the Aeolian islands played in Mediterranean trade, which culminated in the first millennium BC in the systematic colonisation of Sicily by the Greeks. This role can be explained to some extent by the geographical location of these islands and the existence of prevailing winds and currents, which facilitated direct passage to Sicily, and by their position governing the Straits of Messina through which all ships destined for routes north had to pass (4.2.2). In the Late Bronze Age Sicily's crucial pivotal position permitted it to maintain a flourishing trade, not only with the Italian mainland and the Aegean, but also with Malta[11]. LH IIIB pottery found at Borg en Nadur (Evans 1959, 182-188; Buchholz 1974, 328-329) and Tas Silg (Von Hase 1990, 91) may well have reached the island through its trade with Sicily.

The majority of imported Mycenaean artefacts come from cemetery contexts while most of the locally-copied Mycenaean objects were found in settlements.

5.2.1 Religion

At **Lipari** excavations on the acropolis revealed a structure which has been interpreted as a ritual centre. Structure δ IV is an oval building approximately three times the size of other contemporary Capo Graziano structures (Bernabò Brea & Cavalier 1980, 225-232), indicating its importance to the inhabitants and suggesting the presence, even this early, of social stratification or communal activity. Surrounded by a rectangular perimeter wall, its central building was divided into a large hall with a small room off to the west. From amongst the pottery on the floor twelve handmade miniature vases were discovered. These have been interpreted as evidence of ritual activities (Bernabò Brea & Cavalier 1980, 512). While no Mycenaean pottery was discovered in the floor deposits, several fragments were found in the fill of the room, including fragments of two Vapheio cups, probably of LH IIA date and a fragment of a LH IIB goblet. The presence of further miniature vases in the fill might suggest that these drinking vessels were

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[10] Vagnetti 1999, 869-871.
[11] Malta is a logical stepping stone on the route to north Africa. Evidence of connection in this direction is still awaited.

originally part of the inventory of the building and may have been used in the ritual activity (Wijngaarden 1999, 281).

Another possible link between religious activities and Aegean contact can be seen at the E/MBA sanctuary site of **Monte Grande**, thought to be associated with a cult of fertility and procreation on the basis of the presence of clay horns and figurines (Castellana 1990, 5). New work has been carried out on the acropolis area where a Castelluccian defensive wall, over 3m wide in places, and a semicircular 'precinct' have been excavated. Associated with the latter were quantities of Castelluccian pottery and Aegean pottery of MH to LH IIIA date. The presence of imported pottery, at such an early stage in Aegean contact, in a structure associated with local religious practices is indicative of the value placed on it and suggests the possibility that it may have played a role in ritual. Certainly the presence of other imported vessels including coarse ware transport jars (both Mycenaean and Near Eastern types) and some Cypriot pottery attest to the importance of this site in the local community and to well established trade links with the Aegean and beyond (Castellana 1997b, 375-387).

A large portion of an imported Mycenaean *phi* figurine was discovered above the pebble floor of a Milazzese hut (γIII) at the site of **Lipari Acropolis**. It has been classed as a *proto-phi* type figurine and dated to LH IIIA (French, E.B., 1971, 112). In preparing the drawing of this figure for illustration I noted the possibility that a depression above the right upper arm would fit the pelleted head of a baby (see Fig 5.10), which would make this a much rarer *kourotrophos*. Dr French confirmed this and pointed out that there are examples of proto-phi kourotrophoi and even suggested the possibility of a second baby, though twins are more common on *tau* figurines. The figurine is illustrated in Fig 5.10 with the head restored. More interesting, apart from the usual collection of local storage and drinking vessels, was an anthropomorphic figurine of local clay (Bernabò Brea & Cavalier 1980, plate 185: no 1). The association of the two figurines, one local and one Mycenaean may be significant, and it has recently been suggested that they provide evidence of a local cult (Wijngaarden 1999, 284).[12] The contents of the hut, however, suggest normal domestic activities. One cannot exclude the possibility that these items were in fact a child's playthings, or, as frequently asserted by Taylour, small 'household' gods. With this find were fragments of a LH IIIA1/A2 shallow cup, a jug and a stirrup jar, the only sherds of this shape to have been found so far at this site (Bernabò Brea & Cavalier 1980, 174-177). The presence of this rare figurine type

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[12] Two figurines from Scoglio del Tonno in the southern Italian peninsula were also found in conjunction with local figurines (5.3.1).

emphasises the extent of the contact even if it has lost its original significance and associations.

5.2.2 Social Organisation

At the site of **Thapsos**, the largest settlement of the local Middle Bronze Age in Sicily, hierarchic differences and a move towards proto-urbanism have been detected, often attributed to the inflow of ideas and Mycenaean material. The earliest Middle Bronze Age habitation at the site consisted of circular and oval huts split into groups by a number of pathways. At some point in the 13th century BC a change also occurred in building techniques, which resulted in the construction of Complex B, a U-shaped arrangement facing a central court (Fig 5.15). This has variously been interpreted as an administration centre or as warehouses, with parallels at sites in mainland Greece, such as Gla (Marazzi & Tusa 1976a, 62).[13] LH IIIA1 to LH IIIC Mycenaean pottery was recovered from the habitation area but none seems to have been directly associated with Complex B.

An oval structure at **Lipari** (γVI), close to that which contained the figurines mentioned above, provides possible evidence for some form of social differentiation since it is larger than other structures in the Milazzese levels. Constructed with considerable care, this oval building is oriented roughly east-west (Bernabò Brea & Cavalier 1980, 181-186). Two abutting walls on the northern side led the excavators to suggest the presence of an annex or courtyard, a feature also known at contemporary sites on the island of Panarea (Bernabò Brea & Cavalier 1968, 50-70). Although it was not possible to determine the entire extent of this annex, since foundations of the later Greek and Roman town cut through it, its contents are interesting. No less than thirteen Mycenaean vessels can be identified from the fragments retrieved from the small section that was excavated, among which were an LH IIIB miniature jug (undecorated), an amphora and a locally-made Matt Painted carinated cup (Wijngaarden 1999, 284). Both the jug and the cup are the only examples of these types on the island of Lipari, while pieces of only two other amphorae have been found at the settlement. This collection of vessels, otherwise rare in the Aeolian Islands, might imply that the occupiers of this structure had special access to Mycenaean goods. Other material recovered, such as the Apennine dining and storage vessels from the Italian mainland, in combination with the apparent superiority of the structure itself (on the basis of its size and construction), suggests the

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[13] Iakovides (1989) has also argued that such structures at Gla could be interpreted as private residences on the basis of their 'almost mirror image', each with its own megaron attached at the end.

possibility that its occupants benefited from participation in trade or from the results of trade. In consequence they had become a leading family in the community.

Study of the material from the whole of the acropolis site at **Lipari** (Wijngaarden 1999), has provided a detailed analysis of the distribution of the pottery and its association with the different settlement structures. His study shows that Mycenaean vessels were found in almost every structure at the site, throughout all phases of occupation from the Capo Graziano period onwards. This supports the identification of this site as a possible port of trade (4.2.2.) and emphasises that the local inhabitants had regular and consistent contact with the Mycenaean world. This community as a whole was clearly exceptionally well placed geographically and economically to benefit from external contacts – one of the hallmarks of proto-urban societies.

This pattern of differential social organisation is reflected in other villages in Sicily, such as **Cannatello, S. Angelo Muxaro** and **Milena** which all have Mycenaean-style artefacts. There appears to be evidence of orientation of the subsidiary buildings towards a central complex, which is sufficiently larger than its neighbours to suggest an occupant of higher wealth or status. If we accept that the concept of central buildings as cited above was learnt by local traders through Mycenaean contact then it is logical to argue that Mycenaean traders provided the impetus for widespread economic change during the period of the Thapsos culture, which resulted in proto-towns such as Pantalica. It cannot, however, be ruled out there were internal stimuli for the development of social stratification which were fostered and promoted by trade contacts.

The construction of large storage facilities at **Thapsos** could be seen as signalling a change to centralised storage of crops although they may simply have housed goods arriving at the port itself, but there are no other finds to help choose between these functions.

5.2.3 Funerary customs

A total of 67 tombs have now been published from **Thapsos**[14], mainly clustered on the north coast of the peninsula near the lighthouse,[15] of which 22 contained Mycenaean pottery ranging in date from LH IIIA1 to LH IIIB. The majority of the tombs continue the local tradition of multiple burial (up to 25 individuals, calculated on the presence of human skulls, though Orsi does not necessarily include the skeletons in his reports of the tombs). In two cases, tombs 10 and XXI/47, 49 individuals seem to have been buried in each. Both tombs appear to be exceptional, not only from the presence of Mycenaean pottery, but also of other grave goods such as bronze weaponry and jewellery. They are also amongst those which display more elaborate architecture, suggesting a special status for those buried there.

The distribution of vessel shapes in the tombs and the relative dates assigned are presented in Table 5.6. Mycenaean pottery occurs in all tombs with dromoi (*e.g.*tombs 1, 2, 28, 37, 48, 61) as well as those with a so-called 'chimney entrance' (tombs 51, 53, XXI/47). The presence of a dromos, a feature thought to have been introduced to the area through contact with the Mycenaeans, does not appear to be an indication of status or wealth, but rather is determined by the location of the tombs. Those with dromoi are cut into the Neogene (soft limestone) deposits in the northern part of the peninsula (Fig 5.11a), whereas a dromos is a totally impractical feature for those chambers hewn out of the hard limestone of the plateau itself (Orsi 1895, 92-94; Tusa 1983, 395). Two typical tombs with dromoi are illustrated in Fig 5.11b.

It must however be considered that the location of the tombs may indeed be significant in another way. All Mycenaean chamber tombs on mainland Greece, Crete and the Aegean islands are cut into such Neogene deposits, a rock that is easy to carve, even with bronze tools, but when exposed to sunlight and air gradually hardens (Buck *pers. comm.*). A number of examples can be cited of tombs started, but abandoned on discovering that the Neogene deposits were not thick or deep enough to continue. It is not inconceivable that Mycenaeans themselves might have constructed the tombs with dromoi, since they would have naturally looked around for a potential area that was similar to their native territory, where their techniques and knowledge could be readily employed. Such a practice, well known in Greece itself, is unlikely to have been adopted

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[14] It has been estimated that the cemeteries of Thapsos consisted of around 300 tombs (Orsi 1895, 94), of which 104 have been excavated (Bernabò Brea 1970).
[15] The figure of 67 includes forty two tombs published by Orsi (1895), nine by Gentili (1953), five by Bernabò Brea (1966), tomb XXI/47 (Vosa 1972) & A1 (Vosa 1973b) and the nine jar burials (*enchytrismoi*).

by locals unfamiliar with the possibilities this provided for tomb construction, and the presence of this feature strongly suggests the presence of Mycenaean settlers.

The number of chambers in the tombs with Mycenaean pottery varies. While the majority have a single chamber some are also equipped with a vestibule such as tombs 1 & XXI/47 (Orsi 1895, 95-98; Voza 1972, 195) and others, such as XXI/47, have two chambers and some as many as five (tomb 48). A similar repertoire of chambers has been identified on the island of Rhodes in recent cemetery excavations at Pylona, where the chambers are seen to reflect social differentiation (McGeorge 2001; Georgiades 2003, 113).

Table 5.6 below shows the distribution of pottery within each tomb by shape. The majority of the tombs have one to three Mycenaean vessels amongst the grave goods. Tomb XXI/47 appears to be an exception to this rule since it has produced nine such finds, three times more than any other tomb. One explanation for this apparent wealth could be the location of the tomb itself, at the centre of the peninsula (Fig 5.11a) where it was not subject to heavy erosion by the sea or mining for limestone that the other tombs suffered (Orsi 1895, 94-95, Voza 1972, 195) and therefore remained undetected until excavation. The relative date of excavation of the tombs must also be taken into consideration, since the majority with few finds were excavated over 75 years ago when excavation techniques were not as thorough, nor Mycenaean pottery as well understood or documented.

TOMB	Total	alabastra	amphorae	deep bowl	jug	piriform jar	shallow cup	stemmed cup	stirrup jar	fragments
1	1					1				
2	3	1			1	1				
7	2	1				1				
10	1					1				
14	1					1				
27	1					1				
28	1					1				
30	2									2
37	1				1					
40	1	1								
48	1					1				
51	1		1							
53	1								1	
56	1								1	
61	1					1				
63	1				1					
64	3	1				2				
1951-1	1					1				
1951-2	1	1								
1951-3	13	1								
XXI/47	9	3		1		3	1	1		
A1	1					1				
Tombs – '63	2									2
Total	**38**	**9**	**1**	**1**	**3**	**16**	**1**	**1**	**2**	**4**

TABLE 5.6 DISTRIBUTION OF MYCENAEAN POTTERY SHAPES IN THE THAPSOS TOMBS

It is apparent from an examination of the table that piriform jars and alabastra are by far the most frequent vessels: indeed together they constitute more than half the total number of Mycenaean pots at this site. The inclusion of these vessels in tombs is consistent with the pattern of LH IIIA1- LH IIIB burial in the Mycenaean heartland, particularly at the sites of Prosymna and Mycenae (Shelton 1996; Shelton *pers. comm.*). This suggests that the inhabitants of Thapsos who chose to bury their dead in this 'Mycenaean' way by including, as well local pottery, fine items typical of Mycenaean graves, not only had close knowledge of the burial trends on the Mycenaean mainland, but may even in many cases have been Mycenaean. The lack of stirrup jars however, if this is the case, is surprising.

This trend of inclusion in the tomb of piriform jars and alabastra appears to be true at other sites in Sicily as well. At **Syracuse,** where a number of tombs have been excavated, a LH IIIA2 alabastron has been reported (Vagnetti & Lo Schiavo 1989, 237) and among the tomb contents from **Floridia** was a LH IIIA2 straight-sided alabastron (Orsi 1909, 374-378). A tomb at **Matrensa,** discovered in 1871, produced two piriform jars (Taylour 1958, 62) and another dating to LH IIIA2 was found in a tomb at **Mollinello** (Orsi 1902, 413). Fig 5.12 illustrates a selection of piriform jars and alabastra from tombs around Sicily, which are certainly imports on the basis of the quality of both fabric and execution.

Although the burial rites of the indigenous population have long roots predating the advent of Mycenaean trade with the area, there are a number of similarities with the burial practices of the Mycenaeans which no doubt ensured the ready adoption and incorporation of imported wares into their own burial rituals. This is evident particularly in the manner of use of the chambers - multiple inhumation burials over long periods of time, requiring opening and fumigation of the tombs, and the emphasis on feasting and drinking (the Thapsos pedestal basins, and plates in Sicily).

A further body of evidence has recently become available in the field of osteoarchaeology, which is of particular relevance to the question of settlement of foreigners, indeed possible colonisation, in Sicily during the Late Bronze Age. A team of specialists from the Archaeological Institute of Lazio has conducted research on a series of 488 crania from ten Sicilian sites dating to the second and first millennium BC by examining discrete cranial traits. (Their methods are a substantial improvement on those used a century ago on human remains and largely discredited archaeologically). Their results clustered into two groups (Rubini *et al.* 1999, 14), one of which included the probable native population of Sicily. The second group included the results from the

Thapsos crania, which showed a clear allochthonous origin for a substantial proportion of the crania examined from this site. The results confirm that a 'definite Greek biological element [existed] in eastern Sicily as early as the Bronze Age' (Rubini *et al.* 1999, 15).

In addition to the substantial evidence for Mycenaean contact with the settlement of Thapsos and the possibility that some tomb types represent Mycenaean settlers, this research seems to confirm that there were also biological relationships, movements of people into this area producing some modification of the indigenous phenotypes by interbreeding. This modification of the gene pool of the indigenous population can also be seen clearly when examining the crania from tombs dating to the 8th century BC – a period when we know Greek colonies were being established on the east coast of Sicily (Rubini *et al.* 1999, 16). This research is, so far, the most convincing evidence for actual settlement of Mycenaeans (and later Greeks) in Sicily, in particular in Thapsos, but its scope is so far limited to eastern Sicily.

5.2.4 Agriculture

Since the majority of our knowledge concerning the role of Mycenaean trade and contact with Sicily is largely based on evidence from funerary contexts, information about agricultural practices is limited. Studies of the archaeobotanical evidence are now being carried out at new excavation sites (e.g. Wilkens 1991, 1992; Barker 1995; Agostini *et al.* 1992) but this is still an area that needs further investigation before any convincing arguments can be made for or against the extent of Mycenaean influence in this sphere.

5.2.5 Defensive provision

Excavations at **Faraglioni**, a Bronze Age village of the Milazzese culture on the east coast of Ustica, have uncovered a substantial fortification wall, 8m wide and preserved up to 4m high in places, dating to the second and third phases of settlement (Mannino 1982). Strengthened at intervals along its length by ten projecting semi-circular towers, its approximately elliptical shape enclosed probably no more than 20 domestic structures with an estimated population of 100 people (Leighton 1999, 160). This

massive fortification structure seems strangely superfluous for this island community, but may reflect the turbulent times that led to the destruction of all the Aeolian Milazzese settlements during the 13th century BC. A single piece of LH IIIB/C pottery found in a surface stratum does not indicate strong Mycenaean contact with this area, though in the light of its remote position and lack of any desirable commodities to exchange, this is hardly surprising.

Similar fortification walls, about 3m wide, have been excavated at **Mellili** (Fig 5.13a), north of Syracuse (Marazzi & Tusa 1976a, 53; Tusa 1983, 299) and others are reported from **Thapsos** (Vosa 1972, 175; fortifications 1 & 2 on fig. 75 in Leighton 1999, 151). Leighton suggests that these walls may have served to protect the important complex B located at sea level on the isthmus, but their position on the top of the steep escarpment (which is crumbling into the sea today) more than 500 metres further to the south suggests that they may have been no more than terrace walls.

Examples of fortifications like those at Mellili are also known from Scoglio del Tonno, Porto Perone and Coppa Nevigata in Calabria on the southern Italian peninsula, all located in important strategic positions for controlling trade in their respective areas (see 5.4.4). These resemble the earlier Aegean fortifications at Lerna and Chalandriani on Syros (Tusa 1983, 301) and at Aegina (Walter and Felten 1981), which date to the later third millennium BC, more than contemporary Mycenaean fortifications. However this move towards defensive provision in the western Mediterranean appears to coincide with the intensification of contact with the Mycenaean world and may well be the result of ideas and influences from that direction. The first of two perimeter walls at **Cannatello,** which dates to the LH IIIA period (de Miro1999, 448), may reflect the same process (5.2.6).

5.2.6 Architecture

A number of buildings of a type that does not appear to be domestic in Sicily and the Aeolian Islands, dating to the 14th century and later, appear to have been influenced by Mycenaean building techniques. The evidence this influence provides for changes in the social organisation of the indigenous population has already been discussed in 5.3.2. Three good examples of this type of building are the 'warehouse' complex at **Thapsos,** the megaron building at **Pantalica,** both on Sicily and the **San Calogero** 'tholos' on Lipari (Figs 5.15).

At Thapsos two complexes, consisting of long rectangular buildings centred on a pebbled courtyard have been uncovered. A paved road runs roughly east-west past complex 2, possibly linking it to complex 1 to the west. Approximately at the eastern corner of complex 2 a further road joins this one at right angles (Tusa 1983, 394). It is therefore, not inconceivable that a rough grid system of roads originally served this community, suggesting a rough concept of town planning. Streets such as these are known from Dimini in Thessaly, where houses have been discovered bordering a straight road, dating to approximately the same period (Hourmouziades 1982, 36, fig. 13). The location of these buildings close to the harbour has led to the suggestion that these were intended as warehouses. Parallels with the warehouses at Enkomi have been cited (Marazzi & Tusa 1976, 60), but the material recovered from inside the buildings does not offer any clue as to their original use. Structural similarities with Gla in Beotia have also been noted (Marazzi & Tusa 1976, 62), but the proportions are not truly comparable. The techniques of construction and the use of rectangular building plans are, however, unidentified in Sicily before the construction of these buildings.

A similar structure, though more modest in size has been identified at Pantalica – the so-called 'anaktoron' or palace. Later Byzantine buildings have obstructed much of its plan, however, the walls of room A are the large dressed masonry blocks of the original building, clearly constructed with some care. Door jambs have also been identified from this early phase, which are familiar from the Mycenaean heartland and are not features of the indigenous building techniques. Bronze fragments, including a Cypriot style tripod and an axe mould in this room have led to the suggestion that this was an area of metal-working (Leighton 1985, 407). Fortification walls to the southwest, which mark the boundary of the anaktoron complex, have led to the suggestion that this may have been the location of an inner town where the upper echelons of society lived (Bernabò Brea 1990, 102), but further excavation is needed to confirm the size and function of this complex.

The San Calogero tholos, despite its later incorporation into a Roman thermal baths, has its closest parallels with Mycenaean tholoi both in construction and adornment, though on a somewhat smaller scale. The destruction of the doorway during preparations by the Romans for its reuse unfortunately removed any traces of a relieving triangle, if indeed any such feature existed (Bernabò Brea 1990, 59).

Excavations at the site of **Cannatello** in western Sicily have uncovered an extensive settlement (de Miro 1999). Two phases of construction have been identified (Fig 5.14), which reflect the changes occurring throughout Sicily during the period of the Thapsos culture. The first phase consists of a number of circular units enclosed within a perimeter wall (highlighted in red). The second phase of construction consists of a large rectangular building and a circular pebble-paved area – thought to be some form of working area (highlighted in purple). Associated with this phase is pottery of the Thapsos culture, imported LH IIIB Mycenaean pottery and a mould for a bronze axe (Fiorentini 1993-1994, 718; de Miro 1999, 448-449). This change in building techniques corresponds to other changes in the region, thought to have been caused by contacts with the Mycenaean world, such as at Thapsos and Milena.

The substantial quantities of Mycenaean pottery have been dated to LH IIIA2 and LH IIIB and consist almost entirely of closed forms, particularly amphorae with linear decoration. This preference for Mycenaean wares for small scale storage is unusual for settlement sites outside the Mycenaean heartland and may indicate a special function for this building. In other areas of the settlement there are large scale storage vessels, local copies of Aegean prototypes. There are also indications of the presence of Cypriot material at Cannatello. The assemblage from the site includes a small hemispherical cup with vertical stripes and fragments from a 13th century Cypriot pithos (Karageorghis 1993, 583; fig. 3).

These changes in building styles and perhaps even the use of the buildings at this site have a strong association with Mycenaean artefacts and may well have resulted from contact with the Mycenaean world. The presence of such influence at this site, located near the southern coast, demonstrates clearly that this effect was not limited solely to Thapsos, but was much more widespread.

Continuing excavations at **S. Angelo Muxaro,** with its 'tholos-style' tombs, have also yielded in recent years further evidence of 'Aegean influenced' buildings. A rectangular building, not dissimilar to the 'anaktoron' at Pantalica has been discovered here (Wilson 1996, 89). At **Milena**, not far from S. Angelo Muxaro, a fragment of Mycenaean pottery of LH IIIA date has been found in conjunction with 2 stretches of walling which may have originally been part of a similar rectangular building. In addition to this a large rectangular building has now been excavated (Panvini 1993-1994) at **Monte Dessueri.**

Changes in the style of architecture are less easy to identify at **Lipari acropolis,** though still attributable in some degree to contact with the Mycenaean world. Mycenaean

pottery is predominantly associated with structures that differ little in style from local architecture, but where the size of the complex is much larger. The significance of this in terms of changes in social stratification has already been addressed (5.2.2). There is a single structure from Lipari acropolis, dating to Ausonian I, however, that differs enough in terms of its construction to merit mention. Building βX, while smaller than many contemporary buildings, is roughly rectangular and noted by the excavators for the unusual thickness of its walls (Bernabò Brea & Cavalier 1980, 155-156). Associated with the structure were two LH IIIB vessels, a deep bowl and a stemmed bowl, in addition to local pottery.

All of the buildings mentioned above are sufficiently different from the earlier style of local architecture, which consisted of roughly built oval huts (Fig 3.9), to suggest outside influences could have been responsible for their introduction. It seems that their closest parallels come from the Mycenaean heartland where the construction of rectangular buildings and the use of dressed blocks was widespread. It is not unreasonable, therefore, to suggest that these building techniques spread to Sicily through Mycenaean contact, where they were adopted to varying degrees by local workmen – for example the construction of a rectangular building using local stones rather than dressed blocks. Fig 5.15 illustrates a number of buildings from Sicily and the Aeolian islands, showing not only the rectangular nature of the complexes, but also the use of well-dressed stone.

5.2.7 Metal working

Despite a fair range of bronze objects recovered from a variety of contexts, metal objects in Sicily have been somewhat neglected and it was only recently that a systematic study of their origin began (Giardino 1996). Stylistically many of the objects relate to the Italian and Aegean *koine*, but the results of final analysis are still pending.

It has been suggested that scraps of bronze in and around the anaktoron building and fragments of stone moulds at **Pantalica** are evidence of a metal workshop at this site (Leighton 1999, 155), but there is nothing to associate it with Mycenaean influence. Oxhide ingots have now been found at **Lipari, Cannatello** (Bernabò Brea & Cavalier 1980, 756; Lo Schiavo 1998, 499) and **Thapsos** (Leighton 1999, 178), but there is little other evidence of metal working at any of these sites.

Locally-made bronze rapiers of the Thapsos period with long blades with raised midrib, short tangs and three rivet holes have been found at **Plemmyrion.** In concept these rapiers may have been inspired by early Mycenaean contact, but the style and detail is clearly local. Short daggers from **Pantalica, Dessueri** and **Thapsos** with T-shaped hilts are surely derived from Sandars' Type F Aegean swords popular in the 13th and 12th centuries BC.

Bronze mirrors have been found at **Pantalica** (Orsi 1899a 46-7, 54-56; Peroni 1956, fig. 5, 6, 15, 19; Orsi 1912, 331-332) dating to the Pantalica I phase. This group alone has three types present – Type I: Tangless mirrors with rivet holes, Type II variant a: Tanged mirrors with short broad tang and occasional rivet hole and Type II variant b: Tanged mirrors with long narrow tangs that form part of the body (Lo Schiavo *et al.* 1985, 28-30). These mirrors belong to the Aegean and Cypriot typologies established by Catling (1964, 224-227) and in Sicily were almost certainly importeds. Type I mirrors are definitely imported from the Mycenaean mainland and correspond to the type with perishable handle found at Prosymna (Blegen 1937, 350) and Perati (Iakovides 1969-1970, 285-286) for example. A further mirror of this type found at Enkomi in Cyprus (Catling 1964, 224, pl.40a) has also been assigned a mainland origin. The other types at Pantalica are more consistent with a Rhodian or Cypriot origin (Catling 1964, 224; Karageorghis 1974, 90).

Bronze bowls were found at **Milena** (La Rosa 1979, fig. 6d; 1982, pls. 41.1, 42.1) and **Caldare** (Orsi 1897; Vagnetti 1968) in tombs of the Thapsos culture. A fourth and certainly smaller bronze vessel was found in a tomb at Thapsos, however the fragment was so distorted that a secure identification is not possible (Orsi 1895, 131, fig.45). Their Cypriot connection has been much discussed on the basis of parallels with bowls from Enkomi (Vagnetti 1968; La Rosa 1979, 11-12; Matthäus 1980, 136) and they are thought to have been imported from Cyprus in the 13th century BC, although Lo Schiavo, Macnamara and Vagnetti (1985, 32) note that there are some technical differences between the two. These mirrors and bowls are clearly prestige items acquired through some considerable expenditure of resources by elite members of the communities at Milena and Pantalica.

Two gold earrings are reported from **Monte Campanello**, most probably dating to the late Thapsos/early Pantalica period. Of two gold rings from Sant' Angelo Muxaro, one depicts a cow suckling a calf and the other is inscribed with a wolf-like creature, but doubt has now arisen as to their authenticity (Bernabò Brea 1957, 72; Bietti Sestieri 1988).

These are assumed to be of Aegean manufacture since there was no gold-working in Sicily at this time (Milatello 1991, 17). Despite rich deposits of gold in Sicily itself, it appears that it was not until the 18th century AD that these were extensively exploited, with 73 mines producing copper, silver, lead and gold in the Monti Peloritani region (Giardino 1996, 134).

5.2.8 Pottery manufacture

Contact with the Aegean did not only affect social organisation in Sicily. Changes in the material culture occur with the production of locally-made Mycenaean alongside native wares. While local production of Mycenaean vessels is widespread in the southern Italian peninsula, production in Sicily appears to have been more limited.[16] At **Thapsos**, for example, many of the Mycenaean pots from the tombs were imported and we await publication of the settlement material. However material from newly excavated sites suggests that while possible ports of trade such as Thapsos had access to a variety of imported goods, local imitations of this pottery grew up and circulated in more peripheral areas. Locally produced Mycenaean pottery from **Madre Chiesa di Gaffa** for example, appears to be imitating imported wares closely (D'Agata 2000, 64). Mycenaean at these sites however comprises little more than 2.5% of the assemblage, while at Thapsos it is nearer 25%, thus highlighting the role Thapsos played in the exchange of material with the Mycenaeans, and supporting its identification as the port of trade for the area (4.2.2). Locally manufactured vessels also include three small Base-Ring jugs, two from tombs at Thapsos and the third from a tomb at Syracuse, which are Cypriot in style (Karageorghis 1995, 94). Two more fragments have been identified as possibly coming from the same type of vessel (Guzzardi 1996, 26).

Excavations at the acropolis site at **Lipari** uncovered a small hut, which is possibly a potter's workshop. In the north eastern end of hut δ XII layers of burnt earth and several wasters suggest the presence of a kiln (Bernabò Brea & Cavalier 1980, 243-244). While no Mycenaean pottery could be associated directly with the kiln to support the hypothesis that it was being manufactured in this hut, many fragments were found in the eastern and south-western end of the structure including an LH I hole-mouthed jar and LH IIA semi-globular cup. In addition to this structure pits have been reported with thick layers of clay which have been interpreted as cool containers for the raw clay to

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[16] relatively few clay analyses have been conducted on the pottery from this region.

keep it moist prior to working it (Bernabò Brea 1976, 37). Analysis of the clay has shown it to be consistent with that used in the production of the local impasto pottery on the basis of its volcanic inclusions (Williams 1980, 863-866).

Locally-made Mycenaean is visually distinctive by the quality of its fabric and its paint, which is considerably less lustrous than on imported Mycenaean. It is not only the quality of the fabric which makes it distinctive, but also the combination of Mycenaean decorative elements or their placement on a locally-made vessel that is often unusual. This can be seen clearly on a fragment of a closed vessel, possibly an amphora, from capanna δIII at Lipari acropolis (Cavalier & Vagnetti 1984, Tav IV, 7), which has a form of spiral decoration placed beneath its handle (Fig 5.17). This form of decoration is not found on this shape or in this position in the Mycenaean pottery repertoire from the heartland.

One shape that seems to be popular in local manufacture is the small jug (FS 121), two examples of which are illustrated in Fig 5.16. The first (b) is decorated with an inverted version of the hooked multiple stem (FM 19), the second (c) combines a version of the rock pattern (FM 32) with chevrons (FM 58). These motifs, although consistent with an LH IIIB date, are not normally found on vessels of this shape, since small jugs are predominantly linear in decoration in the Mycenaean heartland (Mountjoy 1986, 101). The rock pattern too is more normally found on rounded alabastra (Mountjoy 1986, 96), a further indication of their local manufacture of these jugs. The majority of the Mycenaean vessels appear to have been closed shapes (cf. the Mycenaean pottery repertoire at Cannatello), while in comparison to other regions of this study (e.g. Broglio di Trebisacce in southern Italy and Assiros in Macedonia) open shapes (i.e. drinking vessels) are not particularly common. Presumably they were not introduced into the repertoire of drinking/feasting equipment which seems to have been established since the Castelluccian period.

The local production of Mycenaean pottery was not limited to the fine wares. Local imitations of coarse ware vessels account for more than a quarter of the Mycenaean pottery found at Filicudi (Vagnetti 1991, 285-286). As with locally-made Mycenaean coarse ware from the southern Italian peninsula, it compares well to coarse ware pottery found in the acropolis wells of Athens (Mountjoy 1981, 59-63; Vagnetti 1991, 285; Marazzi 1994a, 30-31). Coarse ware stirrup jars, suitable for transport or storage, are

copied locally at Filicudi (Fig 5.18) and have been found at sites in Sicily with only local pottery - at Capodarro (La Rosa 1969, 33-46) and Monte Raffe (La Rosa 1988-1989, 552). Their presence at such isolated sites is significant, since it suggests not only the value of Mycenaean pottery to the inhabitants, but also the adoption of a shape in areas that are some distance from the possible ports of trade which must have been seen as complementing the local pottery repertoire.

A number of Aegean elements, such as handle types, may have been translated into the local handmade pottery repertoire. Open forms predominate in the local pottery repertoire. Non-functional handles and scant decoration are applied only to medium and large open forms. Orsi first suggested the existence of Mycenaean influence in the local pottery in 1895 when he likened a small jar with pointed handles from Thapsos Tomb 7 to Mycenaean three-handled jars (Orsi 1895, 103, fig. 8). A form of cup with M-shaped handles, which has been found in some numbers at Thapsos, has been thought to imitate Cypriot forms (Karageorghis 1995; Leighton 1999, 174).

A particularly striking example of imitation of Aegean forms can be found at **Thapsos** – the small jug with spout on the shoulder. At least six examples of this type of vessel are known from the cemetery at Thapsos. All the vessels have a vertical handle between the shoulder and rim and two examples[17] have incised decoration in vertical zones on the body (Fig 5.19a). Small jugs with spouts, known as feeding bottles, are attested from mainland Greece from LH IIIA1 through to LH IIIC (FS 159-162, Mountjoy 1986, 203) and in the White Painted VI Ware from Cyprus (Åström 1972, 61-62). The main differences between the Mycenaean and Cypriot vessels are in the position of the handles: these are basket handles on the Mycenaean and vertical handles on the Cypriot. The decorative zones are also different. Decoration on Mycenaean feeding bottles is divided into horizontal zones (Fig 5.19b, c), while that on the Cypriot version is vertical (Fig 5.19d-f). It has been suggested that the Thapsos vessels take after the Cypriot feeding bottles on the basis of the position of the handles (D'Agata 2000, 72), but I would urge caution in assigning it solely to a Cypriot origin. The squatter shape of the vessels is closer to the Mycenaean versions and examples of vertical handles are known (FM 155, Fig 5.19c). Since neither an imported Cypriot nor a Mycenaean feeding bottle has been found at Thapsos or any other site on Sicily, it cannot be said that the Sicilian

[17] From Tomb D and Tomb 48 (D'Agata 2000, 71).

version directly copied either of these. However the predominance of Mycenaean vessels at the site in comparison to Cypriot ones might suggest that the idea came from this source.

These Sicilian spouted jugs are seen as being the predecessors for the strainer jugs which are widely attested in the 12th Century throughout Sicily (Leighton 1981). Examples are known from Pantalica, Agrigento, Caltagirone and Monte Dessueri (Fig 5.20). Leighton proposes that these vessels are likely to have been influenced by Mycenaean prototypes (1981, 291).

A second vessel that appears in the local pottery repertoire at Thapsos after 1400 BC is the two-handled bowl on a raised base. With a diameter ranging from 11cm to 16cm, it is characterised by a low cylindrical collar and two handles set symmetrically at its broadest point (Fig 5.21). D'Agata suggests that this vessel shape, previously unknown in the local pottery repertoire, owes its origin to the Mycenaean deep bowls, through a series of transformations (D'Agata 2000, 73). However, I do not find this argument convincing. As Fig 5.21 shows, the position and style of the handles is different and the gently flaring rim of the deep bowl does not compare well with that on the Sicilian example. The use of birds and animals as decorative elements does however, deserve further consideration.

Figurative decoration such as this is unknown earlier in the local repertoire of Sicily and appears to be concentrated at Thapsos itself. Although bird motifs are common in the Aegean it is difficult to assign a particular source to them. The Sicilian representations are schematic and as such hardly comparable with the naturalistic depictions typical of Crete in the 14th and 13th centuries BC, nor do they compare well with the often extreme stylisations of the Mycenaean repertoire. It is however plausible to suppose that local potters came into contact with pictorial pottery and used this as a stimulus for their own style. Certainly it appears that pictorial pottery, if not frequent, was widespread in Italy.

It would be surprising if pithoi were not as widely employed for agricultural storage in Sicily as they are in southern Italy at the same period (5.3.8) but they are only regularly reported as burial jars at a number of sites. This use is first reported as a rare occurrence in the Copper Age (before 2500 BC) when it could represent another instance of Aegean Early Bronze Age contact. However, the numbers implied to be in use by the period of

the Thapsos culture suggest they were now as common as in the Mycenaean heartland and contact with the social structures and agricultural practices of that region may well have reinforced and enhanced previous habits.

Pottery Fashions in Sicily and the Aeolian Islands

Two sites have been selected on the basis that there is sufficient pottery to attempt a classification of the pottery by shape and date. These are Thapsos on the east coast of Sicily (Table 5.7) and the Acropolis site on Lipari (Table 5.8). They form a contrasting but complementary pair of funerary and settlement contexts.

Thapsos

The Thapsos material included in the tables comes purely from funerary contexts, since the results of excavation in the settlement have never been published. As one might expect from the early date of many fragments, the majority of the pottery is imported. A table (Table 5.6) of the distribution on a tomb by tomb basis can be found in 5.3.3 above.

TABLE 5.7 MYCENAEAN POTTERY FASHIONS AT THAPSOS BY SHAPE AND PERIOD

Shapes	IIIA1	IIIA1-IIIA2	IIIA2	IIIA2-IIIB	?	Total
Alabastra	1			1	1	3
Alabastra, s-s			1	5		6
Amphorae					1	1
Cups, shallow			1			1
Cups, stemmed				1		1
Deep Bowl				1		1
Jugs			2	1		3
Piriform Jars	1	2	8	4	1	16
Stirrup Jars				1	1	2
Fragments					4	4
Total	2	2	12	14	8	38

The majority of the vessels found in the tombs at Thapsos date to LH IIIA2-LH IIIB. The most popular vessels to be included in the grave goods are alabastra and piriform jars, the latter being present in one grave in five, i.e. in 60% of those with Mycenaean characteristics. The significance of this has already been addressed in 5.2.3. The absence of kylikes and the relatively few stirrup jars are unusual for graves of this period. Presumably those buried in the graves, or more likely their families, did not share the widespread Mycenaean desire for perfumed oils.

Lipari

The published material from the settlement site on Lipari acropolis includes many fragments to which a date can be assigned, but it has not been possible to divide them into their respective shape categories.

Shape	LHI	LHI-LHII	LHII	LHII-LHIIIA1	LHIIIA1	LHIIIA1-LHIIIA2	LHIIIA2	LHIIIA2-LHIIIB	LHIIIB	LHIIIB-LHIIIC	LHIIIC	?	Total
Alabastra, rounded		6	2	3									11
Amphorae									2	1		1	4
Bowls	1		1						3	1	2		8
Cups	2	24	16	4	3	2	1	9	2	1	2	8	74
Cups/bowls, stemmed		1	2	1	1	2	2		1	1		1	12
Hole-mouthed jar	1												1
Jugs	1		4	1		10	2		1	1		1	21
Kraters							1	1			3		5
Piriform jar								1					1
Piriform jar, large					1		1					1	3
Stirrup jars									1				1
Various jars	4		1									1	6
Fragments	7	9	4	2		1	1	10	8	1	4	120	167
Total	**16**	**40**	**30**	**11**	**5**	**15**	**8**	**21**	**18**	**6**	**11**	**133**	**314**

TABLE 5.8 MYCENAEAN POTTERY FASHIONS AT LIPARI BY SHAPE AND PERIOD

The Lipari acropolis site is very rich in LH I-LH II pottery, and the majority of the sherds are from Vapheio cups. A similar situation can be seen at Vivara (Marazzi & Tusa 1994). This wealth of early pottery may be a reflection of the flourishing trade in obsidian from the rich sources on the island. Cups of various types are in fact the most popular shape by far at Lipari with 86 different vessels identified so far. Surprisingly, given the preference for deep bowls and kraters at other sites in the western Mediterranean in the LH IIIB and LH IIIC periods, Lipari has very few kraters and no deep bowls or kylikes. There are also relatively few storage containers such as amphorae, which usually occur in some quantity at settlement sites. Jugs are the next most popular vessel, but only 21 have been identified so far.

5.2.9 Assessment of Level of Acculturation

In Sicily and the Aeolian Islands there are indications that Aegean contact dates back to the first half of the third millennium BC, the first evidence of an increasingly strong inter-relationship between the two regions. With the advent of the Thapsos culture there is a marked shift away from a pattern of unranked settlements and undifferentiated communal burials to more obvious discrepancies in the economic success of different districts and for the facilities appropriate to the complexity of a 'central place'.

Table 5.9 shows the summary of numerical data for each of the eight domains of social activity in Sicily and the Aeolian Islands based on the discussion in the previous sections and also on the tabulation of Mycenaean-style pottery in Tables 4.2a&b.

Table 5.10 presents the same information in a visual form allowing a more general impression of the level of acculturation for each of the eight domains of social activity.

TABLE 5.9 ACCULTURATION IN DOMAINS OF SOCIAL ACTIVITY IN SICILY AND THE AEOLIAN ISLANDS

Domains of social activity		Number of sites in Sicily with features@	Total number of sites in Sicily*	% representation	weighting factor category	weighting factor sub-category	weighted value
RELIGION			50				**160**
Belief systems		**0**	50	0	10	4	0
Shrines		**2**	50	4	10	3	120
Cult objects		**1**	50	2	10	2	40
SOCIAL ORGANISATION			50				**368**
Urbanisation		**5**	50	10	8	4	320
central Storage		**1**	50	2	8	3	48
FUNERARY CUSTOMS			50				**480**
Mortuary systems		**1**	50	2	8	4	64
Grave types		**0**	50	0	8	3	0
Grave goods (Mycenaean type)		**13**	50	26	8	2	416
AGRICULTURE			50				**72**
Crops		**0**	50	0	6	4	0
Methods of cultivation		**0**	50	0	6	4	0
Storage methods		**3**	50	6	6	2	72
DEFENCE PROVISION			50				**64**
Cyclopean circuit walls		**0**	50	0	4	4	0
Fortifications		**4**	50	8	4	2	64

Domains of social activity		Number of sites in Sicily with features@	Total number of sites in Sicily*	% representation	weighting factor category	weighting factor sub-category	weighted value
ARCHITECTURE			50				**152**
[Religious]		**0**	50	0	4	4	0
Public		**3**	50	6	4	3	72
Domestic		**5**	50	10	4	2	80
METAL WORKING (MYC – CYPRIOT)			50				**150**
Workshops		**1**	50	2	3	4	24
Moulds		**1**	50	2	3	4	24
Finished product		**7**	50	14	3	2	84
Ingots		**3**	50	6	3	1	18
POTTERY MANUFACTURE			50				**328**
Kilns/workshops		**1**	50	2	2	4	16
[Dolii/pithoi/storage vessels]		**0**	50	0	2	3	0
Locally-made Mycenaean coarse ware		**3**	50	6	2	3	36
Locally-made Mycenaean fine ware		**17**	50	34	2	2	136
Grey ware (wheel-made)		**0**	50	0	2	2	0
Local/Mycenaean mixed		**5**	50	10	2	2	40
Imported Mycenaean		**25**	50	50	2	1	100

@ excluding hoards.

* based on the number of MBA-LBA sites of major significance after Leighton 1999, 146, 189.

TABLE 5.10 A READING OF THE COMPARATIVE LEVEL OF ACCULTURATION IN SICILY AND THE AEOLIAN ISLANDS

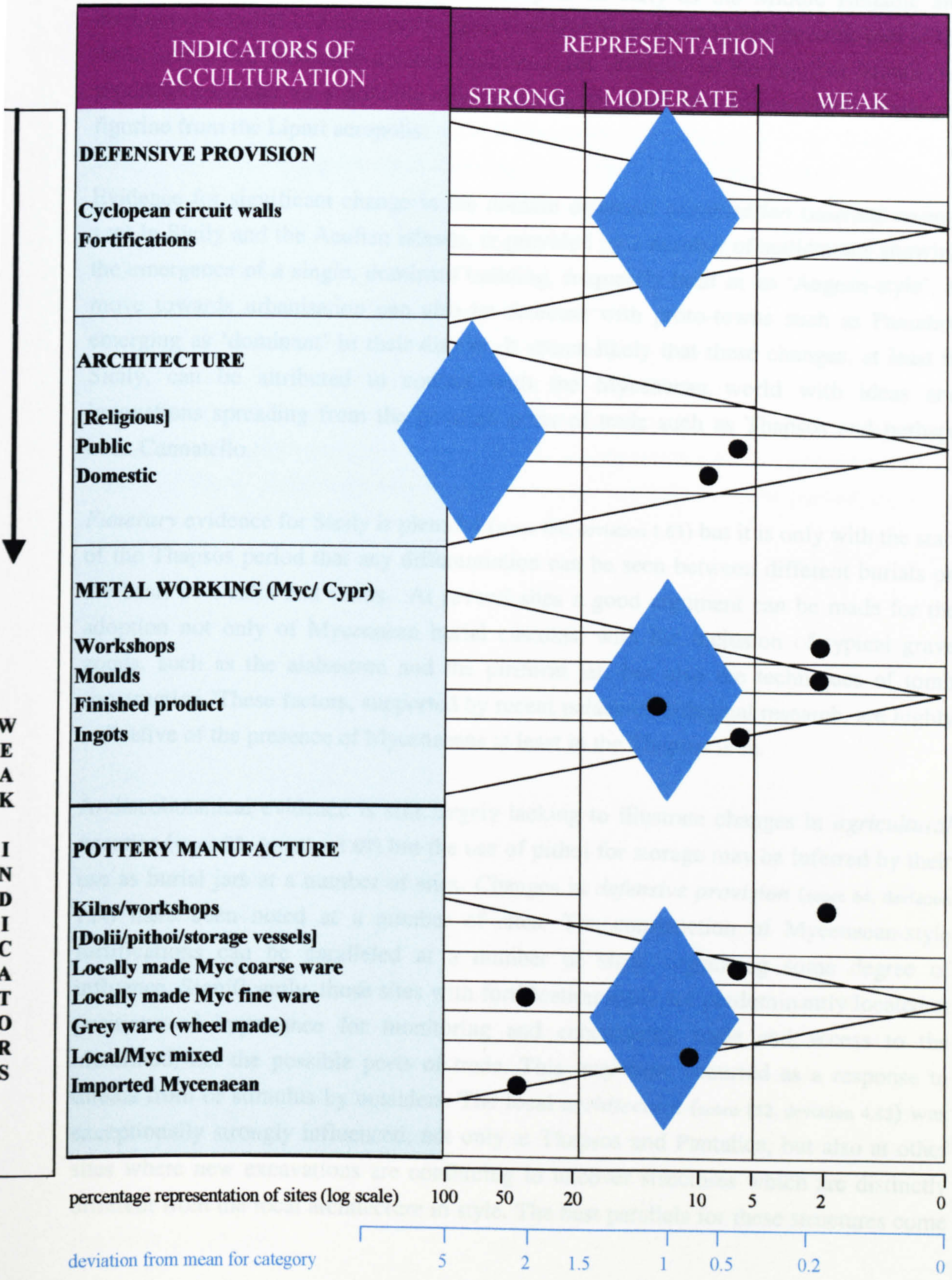
INDICATORS OF ACCULTURATION	REPRESENTATION		
	STRONG	MODERATE	WEAK
RELIGION **Belief systems** **Shrines** **Cult objects**	◆		
SOCIAL ORGANISATION **Urbanisation** **Central Storage**	◆		
FUNERARY CUSTOMS **Mortuary systems** **Ritual/Grave Types** **Gravegoods (Mycenaean type)**	◆		
AGRICULTURE **Crops** **Methods of cultivation** **Storage methods**		◆	

STRONG INDICATORS

percentage representation of sites (log scale) 100 50 20 10 5 2 0

deviation from mean for category 5 2 1.5 1 0.5 0.2 0

TABLE 5.10 (CONT.) A READING OF THE COMPARATIVE LEVEL OF ACCULTURATION IN SICILY AND THE AEOLIAN ISLANDS



Relatively strong evidence for acculturation in *religion* (score 160, deviation 2.20) is provided by two local 'sanctuary'/cult centres, one on Lipari and one at Monte Grande in Sicily. The presence of Mycenaean vessels dating to as early as the Middle Helladic and continuing into LH IIIA strongly suggest that Mycenaean pottery had become part of the ritual activity of these two centres. Only one site in Sicily or the Aeolian Islands has produced evidence of a possible cult object in the form of a *kourotrophos proto-phi* figurine from the Lipari acropolis.

Evidence for significant change in the domain of *social organisation* (score 368, deviation 3.20) in Sicily and the Aeolian islands, is provided by a number of settlements showing the emergence of a single, dominant building, frequently built in an 'Aegean-style'. A move towards urbanisation can also be detected with proto-towns such as Pantalica emerging as 'dominant' in their district. It seems likely that these changes, at least in Sicily, can be attributed to contact with the Mycenaean world with ideas and innovations spreading from the possible ports of trade such as Thapsos and perhaps even Cannatello.

Funerary evidence for Sicily is plentiful (score 480, deviation 1.63) but it is only with the start of the Thapsos period that any differentiation can be seen between different burials on the basis of wealth and status. At several sites a good argument can be made for the adoption not only of Mycenaean burial customs, with the inclusion of typical grave goods, such as the alabastron and the piriform jar, but also the techniques of tomb construction. These factors, supported by recent palaeo-osteological research, are highly indicative of the presence of Mycenaeans at least in the Thapsos area.

Archaeobotanical evidence is still largely lacking to illustrate changes in *agricultural practice* (score 72, deviation 1.07) but the use of pithoi for storage may be inferred by their use as burial jars at a number of sites. Changes in *defensive provision* (score 64, deviation 1.14) have been noted at a number of sites. The construction of Mycenaean-style fortifications can be paralleled at a number of sites, suggesting some degree of influence. Significantly, those sites with fortification walls are predominantly located at positions of importance for monitoring and encouraging trade and access to the hinterland, i.e. the possible ports of trade. This may have occurred as a response to threats from or stimulus by outsiders. The local *architecture* (score 152, deviation 4.82) was exceptionally strongly influenced, not only at Thapsos and Pantalica, but also at other sites where new excavations are continuing to uncover structures which are distinctly different from the local architecture in style. The best parallels for these structures come

from the Aegean, suggesting that the choice of techniques, if not the building materials, was influenced by Mycenaean contact.

Despite the mineral wealth of Sicily, *metalworking* (score 150, deviation 1.01) appears to have been underdeveloped during the Bronze Age. Objects which have been found, in tombs for example, seem to indicate direct links with the Italian–Aegean *koine* and were for the most part locally-made. The development and changes in the *pottery* once again reflect those occurring in other domains (score 328, deviation 1.03). The production of Mycenaean-style pottery began around LH IIIB. While its production is not extensive at possible ports of trade like Thapsos, presumably because of their ready access to imported wares, it is widespread throughout the region. The pottery produced in inland areas closely follows the trends in shape and decoration in imported pottery, a reflection of the importance and value of the pottery to the indigenous peoples. Mycenaean pottery also influenced the local pottery repertoire as is indicated by the production of feeding bottles and coarse ware stirrup jars. Cypriot elements can also be detected in the pottery but are less numerous and there is every reason to suppose that these objects reached the shores of Sicily along with Mycenaean elements, and may be even part of the same cargos.

Response to Mycenaean contact in Sicily and the Aeolian Islands

In the pre-Mycenaean and early Mycenaean periods there is little differentiation to be detected in the ranking of settlements or of different burials. At this time the role of Lipari and the other Aeolian Island communities was obviously particularly significant in the trade networks of the central Mediterranean and provided a focus for the exchange of a variety of goods. The speed and depth of the changes that occurred at the beginning of the Thapsos period in conjunction with the first intensive Mycenaean contact in Sicily suggests that this may have been a very significant influence, albeit on a society open and ready for economic advance and social development. It is intriguing that the absence of an existing elite in this region corresponds to a greater depth of acculturation than in those regions where an elite has become differentiated and established for many generations. However much the foundations had already been laid in the third millennium these had not led to any major developments until this period of extensive interaction.

The Thapsos period sees the use of fortification, rectangular buildings, and Aegean-style 'public' architecture together with the adoption of Mycenaean pottery technology for the production of good quality imitations as well as hybrid forms. The available evidence indicates that Mycenaean pottery was not adopted into the social, ritual and display evident in the wide range of elaborately decorated traditional wares and that it found a role in the private domain. While there is as yet no contact recorded between the Aegean and Sicily during the early stages of the Iron Age, the social organisation established in the 13th century seems to have persisted until the period when trade was renewed. It can hardly be coincidence that the location of 8th century colonies was often close by sites which already seem to have been established as Bronze Age ports of trade.

5.3 THE SOUTHERN ITALIAN PENINSULA

The discovery in 1880 of two Mycenaean stirrup jars from near Brindisi, nine years after similar pottery had been found in Sicily, was the first indication of Mycenaean contact in the southern Italian peninsula. The proximity of Italy and Greece and the similarities between their climate and terrain ensured that from the early second millennium BC, at least, these two regions came in contact, as demonstrated by the finds of middle Helladic pottery at Porto Perone and perhaps by the discovery of boar's tusk fragments drilled in the Aegean-style for a helmet at Nola in the region of Naples in 20th/18th century BC context (see cultura@ilmattino.it). Despite the lack of the mineral resources in the region that must have inspired trade with other areas, its role as a possible channel for the amber trade from Europe, a commodity which both the Mycenaeans and their predecessors desired, may have instigated trade with this area (Harding 1984, 74). Our picture of the amber trade has improved recently (Guida 1999) emphasising the importance of the Po valley at one end of this Adriatic trade. These contacts culminated in the first millennium BC in the systematic colonisation of the southern coastline by Greeks.

The majority of imported and locally-made Mycenaean artefacts come from settlement contexts with very little from burials. An important individual context is the bronze hoard from Surbo, which contains types belonging to the Italian-Aegean metalwork *koine*.

The majority of finds of Mycenaean-style artefacts have been found south of a line from the Gargano peninsula to the Tiber and only evidence from this area is tabulated in this section. Other evidence of Mycenaean contact from further north in Italy or the Adriatic has been included (5.3.8) to complete the picture of the extent of Mycenaean contact.

5.3.1 Religion

As yet no assemblage of material from any region of peninsular Italy may be considered in any way as evidence for religious or ritual activity in the manner practised by the Mycenaeans themselves, nor have any religious structures been identified that show Mycenaean stylistic traits.

Fragments of four figurines from **Scoglio del Tonno** may be offered as examples of traces of religious activity (Fig 5.22), although not enough is known about their find spot to show whether they were *in situ* in a shrine. Two, of Mycenaean-style, may be presumed to be imports. The first (a) has been classified as a late Ψ type (French, E.B. 1971, 187), dating to late LH IIIB or early LH IIIC. The figurine is of buff ware with a whitish-yellow slip and red to brown glazed paint. It is of the normal waisted type (French, E.B. 1971, 188), its skirt delineated using slightly wavy bands stemming from the waist band. Where it differs from many of its contemporaries is in the unusual 'blouse' top above the waist, where horizontal bands have been applied to the arm area to represent sleeves. These have been extended to form a 'crossover' front and 'v' neck giving the general appearance of crude crosshatching. Examples of this type of decoration are known from Mycenae (e.g. French, E.B. 1971, plate 66a), but there are no direct parallels. The second figurine, of which only the lower half has been preserved (Fig 5.22b) is of a much more standard type and could originally have been either a *psi* or *phi*. The angle of the body extending from the waist would suggest the former as more likely, which would place the date of the figure in LH IIIB.

A third figurine (Fig 5.22c) of local manufacture was found in the same deposit as these two. The manner of execution of its head, formed by pinching the clay between the thumb and first finger, is likely to have derived from Mycenaean archetypes. While it is undoubtedly locally-made, it resembles to some extent a late *psi* figurine from Amyklae (French, E.B. 1971, plate 22a: 27). A fourth, animal, figurine with a high arched tail (Fig 5.22d) was also found and is very similar to one from Agios Mamas in Macedonia (5.5.1).

The association of two imported Mycenaean figures, one of a very rare type, with a local imitation of Mycenaean archetypes strongly suggests the influence of Mycenaean religious practices (accepting the normal assumption that Mycenaean figurines have a cult role). The fact that this group can be dated towards the end of the Mycenaean

period, long after the first contact at Scoglio del Tonno, may indicate that Mycenaean influences increased in strength through time.

5.3.2 Social Organisation

The changes that occur during the course of the 15th and 14th centuries in the local cultures of the south Italian peninsula, which coincide with, though are not necessarily the result of, the establishment of contact with the Mycenaean world, indicate a change in social organisation and a distinct move towards urbanisation (3.5). As with other areas in Italy, settlement location, perhaps affected by the sudden flourishing of trade and therefore the advent of outsiders, is altered and many sites relocate to more defensible positions, frequently inland. Settlements in coastal locations, particularly those that possibly served the function of ports of trade, like **Scoglio del Tonno** and **Broglio di Trebisacce**, become heavily fortified by the 13th century (see 5.3.5). Individual centres emerge as 'central places' (proto-towns), controlling a hierarchy of settlements, particularly in areas such as the Sibaritide, where the greatest numbers of settlements with Mycenaean-style pottery are located. The area controlled by the proto-towns seems to be varied, with the more competitive centres, Broglio di Trebisacce and **Torre del Mordillo**, extending over ten hectares (Peroni 1994b, 840-850).

This Proto-urban form of organisation has also been proposed at **Coppa Nevigata** in Puglia, where excavations between 1972 and 1975 revealed 'large square houses built with stone walls on either side of narrow streets' (Peroni 1983; Cazella & Moscoloni 1999). In the report by Puglisi, however (1982, TAV IV-V) there is only a single street with the remains of what may have been a single rectangular house. The presence of substantial fortification walls (5.3.5) suggests the importance of the settlement. Both imported and locally-made Mycenaean pottery have been identified at the site, dating from LH IIIA through to LH IIIB. Sadly these structures have recently been destroyed (Kilian 1996, 455 fn. 46), and it is no longer possible to confirm their identification as 'Aegean' in style.

At **Broglio di Trebisacce** it has been estimated that the population consisted of some 1100 individuals (Vallini 1984, 315; Peroni 1994b, 835) and that there was some form of social stratification from the end of the Middle Bronze Age (Peroni 1994b, 837-838). A rich concentration of metal finds and prestigious ceramics found during the excavation of the *complesso a monte* at Broglio di Trebisacce has led to the suggestion that this building might have housed some kind of central authority. First discovered

during the campaign of 1980, this apsidal building, approximately nine by seven metres and oriented east-west, is built on an artificial terrace (Fig 5.23). The floors consisted of beaten earth and were substantially higher in the west end, while a number of post holes in the east suggested that a wooden floor may have originally been erected to make up the difference. Associated with this earth floor were three Mycenaean-type vessels, including a small fragment of a LH IIIC wavy band deep bowl, and amphora decorated with linked whorl-shells of LH IIIB style. There were also three carinated cups and a jar in local impasto and fragments from three *dolii* (Capofieri & Giardino 1984, 68; Bellardelli 1984, 137; Buffa 1984, 161). Other finds of Mycenaean pottery in subsequent levels, bringing the total number of finds to 59, suggest that it was an integral part of the material culture in use in this building.

A bowl with one handle deliberately removed and a swastika inscribed below the break has been identified as a foundation offering, leading to the suggestion that this was a centre for cult activities (Barbieri, Peroni & Trucco 1984, 20-21). However, the concentration of Mycenaean-style pottery found in this building[18] suggests more convincingly that it had some role in the circulation of imported and locally-made Mycenaean goods, which were perhaps more accessible to some groups (Wijngaarden 1999, 306). Moreover the concentration of bronze finds in this area may also contribute to the picture of the function of this building, perhaps as a redistribution centre.

The distribution of *dolii*, large storage vessels, throughout the site at **Broglio di Trebisacce** (see 5.3.4), clustered in groups of 5 or more in 'storerooms', suggest that not only did this form of storage become widely adopted, but that there was a change in the internal organisation within the settlement from storage for individual needs to a more centralised storage area for each sector of the town. This pattern is repeated in the Protovillanovan site at Serre d'Altilia in Calabria (di Domenico 1996).

To what extent contact with the Mycenaean world through the possible ports of trade provided the impetus for these changes is difficult to assess, but that they developed after Mycenaean contact had been established is significant.

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[18] This building produced a total of 101 Aegean-type finds, among which three imports have been identified (Wijngaarden 1999, 308).

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5.3.3 Funerary customs

Bronze Age burials on the Italian mainland have been discovered either under monumental dolmens which serve for collective burial or in natural caves which were used over long periods of time (Cipolloni Sampò 1987; 1991-1992). Mycenaean pottery has been found in burial caves at **Grotta Manaccora, Praia a Mare** and **Sassano,** isolated from settlement sites.

A dolmen site has been excavated near the town of **Giovinazzo** and a LH I/LH II cup has been reported (Lo Porto 1967, 162). The dolmen was also very elaborate and included a structure that has been described as 'tholos-like' with a dromos of large stone slabs beneath a tumulus, which may have been constructed as a result of knowledge of Mycenaean burial practices in some form. The cup was found in association with a variety of local drinking cups and bowls. It has also been suggested that this site is significant as it indicates that Mycenaean vessels were already being included in funerary ceremonies of 'highly symbolic content' (Wijngaarden 1999, 332). A second grave context in the same area at **Via Marco Polo** included imported LH IIIA pottery.

Although no Mycenaean finds have been made at the dolmen site of Molinella, LH II B pottery has been found at the associated proto-Apennine B settlement site (Navi 1982, 33-34; Bernabò Brea 1985, 167; Re 1999, 412), one of the very few settlements which can be associated with a cemetery. The presence of status items such as the early Mycenaean pottery should be no surprise in a settlement which could support the construction of dolmen burials for its elite members.

At **Torre Santa Sabina** a tumulus with twenty five pit graves has been excavated (Lo Porto 1993,12; Coppola & Cinquepalmi 1998, 149-150). The Mycenaean-style pottery from the graves is dated to LH IIIA and LH IIIB. The nearby settlement site with LH IIIC pottery may not have any relationship to this cemetery. The pits themselves appear to have been rather small and were hewn out of the natural rock of the site. Some of the graves contained children's burials[19], while fifteen others each contained a single adult burial without grave goods. Grave 5 yielded a large number of human bones, which suggests successive burials, but the only other find in this grave was a clay disk. Graves 9, 15 and 21 contained a single adult each and a small number of impasto vessels, in particular carinated cups.

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[19] Pits 10, 11, 13, 25.

In comparison to the burials already mentioned, Grave 12 is of particular importance. Situated in the centre of the tumulus and larger than the others, it is also one of the few containing a bench on which the head of the dead had been placed. This grave also produced Mycenaean pottery, a LH IIIA2 cup and a LH IIIA2 alabastron. A one-handled jug, most probably imported, though of uncertain provenance, was also amongst the grave goods. It has been postulated that the jug is 'of Macedonian Matt Painted ware of the 12th century BC' (Lo Porto 1993). The discovery of matt-painted vases at Aiani in western Macedonia (3.7) in association with Mycenaean LH IIIA2 pottery would allow a date more in keeping with the other grave goods. Vagnetti classifies it as LH IIIA (Vagnetti 1998, 274). The absence of similar exotic objects in other graves clearly demonstrates the importance of Mycenaean pottery in demonstrating the social differences at this site and its value, since it appears to have been used as part of the funerary display limited to a specific individual.

In the absence of an equivalent wealth of funerary evidence like that known from Sicily, it is hard to assess whether contact with the Mycenaean world had any direct effect on the burial practice of the local culture. The grave goods from Grave 12 at Torre Santa Sabina certainly provide evidence of social differentiation, and the association of Mycenaean pottery with an individual who clearly held an important status is interesting as it suggests that at this site at least Mycenaean pottery had become associated with local burial practices.

5.3.4 Agriculture

The process of urbanisation and the emergence of Proto-towns, particularly in the Sibaritide, resulted also in changes to agricultural practices. While Peroni suggests (1994b, 845-845) that the accumulation of large numbers of people in particular areas resulted in a shift in the balance of subsistence from pastoralism, hunting and fishing towards agriculture for agricultural products, this probably underestimates the importance of agriculture in the Early Bronze Age economy (Barker 1995, *inter alia*). Peroni also suggests that there was competition between major sites for control over specific areas and their agricultural production, among which he includes Broglio di Trebisacce, Francavilla Marittima and Torre del Mordillo (Peroni 1994b, 840, 850). The local production and use of *dolii* (storage pithoi) which have their origins in the Aegean certainly provide evidence for changing practices.

The discovery of an olive stone at **Broglio di Trebisacce** in association with Mycenaean material has provided the earliest evidence for the domesticated olive in Italy (Vagnetti & Panichelli 1994). Domestication seems to have become widespread by 1200 BC, with evidence of olive cultivation at **Tufariello** near Buccino (La Croix Pippen, 1975, 80). The introduction of the necessary technology for the cultivation of the domestic olive (grafting etc.) may well result from contact with the Aegean. Evidence for a change from importing olive oil to its local production can be seen in the sudden decline in numbers of imported stirrup jars, so typical in LH IIIA2 and LH IIIB1 at Scoglio del Tonno. The local manufacture of coarse ware stirrup jars at a number of sites in Italy (5.3.8) from the middle of LH IIIB could be seen as the local response to a need for suitable storage containers for locally-produced oil.

A series of huge *dolii* from **Broglio di Trebisacce**[20], made locally from the 13th century in a fine buff clay (see below 5.3.8), are without doubt inspired by the pithoi used widely in the Aegean for storage and employ a very similar technology, previously unknown in southern Italy. While no complete examples have been found, a *dolio* from **Porto Perone** has been reconstructed to a height of approximately 60cm (Bergonzi & Cardarelli 1984, 144) suggesting an overall height of over a metre. Fig 5.24 illustrates two similarly sized examples of locally-made *dolii*, with applied cordon decoration, while Fig 5.25 illustrates the variety of decoration used on these vessels including slashed (c & d) and cross hatched (e) cordons. Five of these vessels were found broken *in situ* in a large rectangular pit in sector D-north, which suggests the presence of a storeroom (Bergonzi and Cardarelli 1984; Buffa 1984; Peroni & Trucco 1994, 68-80).

A similar deposit of *in situ dolii*, not as yet published in detail, has been discovered in excavations since 1990 in the areas between sectors B & D (Peroni & Vanzetti 1993, 140; Wijngaarden 1999, 305), suggesting the wide adoption of these vessels for storage across the site. *Dolii* like these have also been found at **Torre del Mordillo** (Bergonzi *et al.* 1982a, 107; Vagnetti 1993b, 151), **Scoglio del Tonno**, **Porto Perone** (Lo Porto 1963a, 336) and **Satyrion** (Belardelli 1993, 350). Similar style *dolii* have now been reported from **Crotone**, the first examples of the use of this type of pottery outside the Sibaritide (di Domenico 1996). At **Coppa Nevigata**, while large *dolii* of Aegean type are not found, large vessels, termed 'pithoi' by the excavators, made from the same clay as the local impasto vessels, are common (Cazzella & Moscoloni 1987, 142).

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[20] Fragments of at least 42 *dolii* from Broglio di Trebisacce are illustrated in Bergonzi & Cardarelli 1984, 146-163.

As this manner of storage is otherwise unknown in Italy before or at this date it is not unreasonable to infer that this change was influenced by contact with the Mycenaeans. Whether they were used for the storage of grain or, as at Troy, for the storage of liquids (Blegen 1958, 97), the quantity at Broglio di Trebisacce and Serre d'Altilia suggest the adoption of new agricultural practices on a large enough scale to produce a surplus for which special storage provision was required.

While most other Mycenaean characteristics in this region do not seem to survive past the end of the Bronze Age, that the use of *dolii* for storage persisted after the end of the Mycenaean period shows how thoroughly established they had become in the local tradition. Examples are known from the Iron Age sites of Serra del-Aranco, Mt. Foscaldo and Toppa della Zita (di Domenico 1996). Others, found in the recent excavations at Iron Age **Roca Vecchia,** have been reported in more detail (Guglielmino 1999). While *dolii* were found throughout the site, four, associated with a rectangular structure built against the fortification walls, were discovered *in situ*, their bases sunk below floor level. The pottery from the building is largely impasto wares and Japygian Protogeometric, although a fragment of Mycenaean was reported. These cordon-decorated vessels are very similar to their earlier counterparts at Broglio di Trebisacce, and show evidence of refined techniques of manufacture. The two that were amenable to reconstruction (Fig 5.26b & c) are approximately 140cm in height with a capacity of 600 litres (Guglielmino 1999, 475, fn.2).

5.3.5 Defensive provision

Fortification walls dating to the Final Bronze Age (end of the 13th century/beginning of the 12th) have been excavated at **Scoglio del Tonno, Coppa Nevigata** (Puglisi 1975), **Porto Caesaro, Porto Perone, Satyrion, Torre Castelluccia** and **Broglio di Tebisacce** (Peroni & Vanzetti 1993, 137-138). The fortifications are a striking feature of these settlements and are modelled on a type known from Tiryns (Touchais 1983, 107) and Berbati in the Argolid as well as Ephyra in Epirus (5.4.4).

5.3.6 Architecture

The rectangular houses excavated at **Coppa Nevigata** (Vagnetti 1982a, Tav IV-V) have been suggested to show influence through contact with the Mycenaean world, but the rectangular form is so far restricted to this single site. The true nature of these houses is

difficult to ascertain from plans, and since they have since been destroyed there is no possibility of assessing how widespread this form of architecture was within the site.

5.3.7 Metal Working

While Italy is well known for its metal hoards and range of its metal working, almost all of this material comes from northern and central Italy and thus is not directly relevant to the study of the principal areas of Mycenaean contact. The hoard from **Surbo** is an important group of metal products (Macnamara 1970), but this has been discussed in depth by Bietti Sestieri (1988) who provides a good summary of Italian metal work and further references. She emphasises the marked increase in the quantity and variety of the bronze goods in use from the beginning of the 13th century and concludes that this is directly related to Aegean influence (3.5). Many of the objects indeed belong to an Italian-Aegean *koine* and are testimony to the close relationship that developed between the two regions, if only as a result of a shared technology. As a result the place of manufacture of any individual object is uncertain and the presence of objects in this category tells us nothing about detailed patterns of trade and influence. Since there is little evidence in the southern Italian peninsula to support a widespread metalworking industry, not least because of the absence of mineral deposits in the region, it seems redundant to present a detailed discussion of the metal types.

Of the few examples of metal work which have direct Mycenaean parallels there are knives from Scoglio del Tonno (Bietti Sestiere 1973), but despite the abundant evidence of trade with this site in terms of Mycenaean pottery, it is hard to assign these as definite imports and they should therefore be classed as belonging to the *koine* with no certain place of manufacture. Likewise the winged axe mould from the same site which has been suggested to be Mycenaean is more probably manufactured in northern Italy, certainly the moulds of a similar type in the Mycenaean heartland have now been given an Italian origin. For this reason only Surbo has been counted as showing true affinities with the Mycenaean world in the metal working section of Table 5.13.

5.3.8 Pottery manufacture

The pottery may be divided into the following categories – imports; locally manufactured Mycenaean fine wares; Mycenaean-style coarse wares, Aegean-style storage vessels and local wheel-made wares.

The actual number of imports at **Broglio di Trebisacce** is few (approximately 3% of the Mycenaean and Mycenaean-style pottery - Vagnetti 1993b, 147), but these originate from several different areas of the Aegean, predominantly the Peloponnese (Jones 1993c, 132). This varied influence is recognisable in the locally produced Mycenaean. Although Wijngaarden recognised Minoan influences in at least twenty locally produced vessels (1999, 310), they have equally good parallels in the Peloponese. Moreover analysis of the clay has not yet detected any actual imports from Crete at Broglio di Trebisacce (Vagnetti & Panichelli 1994, 399). Clay analysis of a sherd from Crotone in Calabria, for which a Minoan origin has been suggested, relates it to fabrics typical of Kythera and the Peloponnese (Lattanzi, Marino, Vagnetti & Jones 1987, 37-44) and it may be dated to LH IIA. Since the majority of the imported wares analysed from a variety of sites in Italy seem to have come from the Peloponnese and Rhodes, I prefer to look first for parallels for the local Mycenaean pottery in these regions, which are after all the source of vessels used as archetypes.

Some exceptional examples of imported wares[21] with such parallels come from **Scoglio del Tonno.** Four fragments of curled feet and two pierced fragments from the body of incense burners, in a gritty Mycenaean cooking ware, probably from three different vessels, were found during excavation of the site (Fig 5.27). Fragments (a) come from FS 316 and fragment (b) with its tapering curl is probably from FS 319. They are the only examples of these vessels to be found in Italy and they do not appear to have been copied in the local pottery repertoire. Incense burners are predominantly found in tombs in the Aegean area and are thought to have been used for the fumigation of tombs before laying out the next body. At Mycenae, such vessels (though with straight feet) were found in tombs 502 and 532, where there was evidence of multiple interment (Wace 1932, 184).

This particular type, with its triple curled feet and knobs on the body is otherwise only found on Rhodes, for example at Ialysos (Forsdyke 1925, 139) and Pylona (Karantzali

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[21] That the material from Scoglio del Tonno was predominantly imported has been confirmed by analysis (Jones 1993c, 132).

2001, 213) and dates to LH IIIA2. Similar examples are known from tombs at Müskebi (Fig 5.27c) in Anatolia (Özgünel 1996), which were imported from Rhodes. These examples from Scoglio del Tonno are therefore almost certainly imported from Rhodes and they and other vessels suggest direct links with this island. The presence of such unusual objects, which are normally associated with graves, in a settlement context is strange. Bearing in mind that Scoglio del Tonno is a suitable candidate for a port of trade, a likely explanation might be that they were intended for further distribution, perhaps 'on order'.

Significant production of locally manufactured Mycenaean pottery using the full range of Mycenaean technologies did not begin until LH IIIB (Jones 1986b, 205-214; Vagnetti & Jones 1988, 337-347; Jones & Vagnetti 1991, 131-132; Jones *et al.* 1994; Buxeda i Garrigos *et al.* 2003), and up until this point it seems that the material was imported. Evidence from two sites has been particularly useful in determining this – Termitito and Broglio di Trebisacce, both of which have been excavated over the last fifteen years and studied in detail with additional analysis by Jones. Chemical analysis has shown that the production of Mycenaean locally was not only widespread but also substantial. A recent comparison of the technological characteristics of Mycenaean-style and impasto wares has shown that, although there is some variation in firing temperatures, the technology of the local Mycenaean closely resembles that exhibited by samples from the Mycenaean heartland. It also reinforces previous indications of the existence of numerous local workshops at least in Sibaritide (Buxeda i Garrigos *et al.* 2003).

At **Broglio di Trebisacce** over 90% of the Mycenaean-style pottery was produced locally. The analyses conducted on the locally-made Mycenaean, the Grey Ware and the *dolii* from the same site have suggested, on the basis of their 'subtly different petrographic composition' that there may have been different local workshops specialising in one or the other of these wheel-made wares (Jones 1993, 132; Buxeda i Garrigos *et al.* 2003). Wasters from a kiln found at **Termitito** (de Siena 1986, 45) suggest that this was probably one of the production centres, a hypothesis which is confirmed by the Mycenaean pottery from this site which is almost exclusively locally manufactured. Possible clay sources have been identified near Corigiliano in the western part of the Sybaris plain (Jones & Vagnetti 1991, 132). Clay beds have also been reported in the area between Broglio and the town of Trebisacce, as well as in the centre of Amendolara, approximately 8km to the north (Jones *et al.* 1994, 217).

From LH IIIB local preferences can be identified in the decoration of Mycenaean-style pottery which reflects the variety of influences. Vessels decorated with wavy bands,

fashionable in LH IIIC late in the Mycenaean world, are copied locally, such as the deep bowls from Broglio di Trebisacce (Fig 5.29) and a small jug from Saturo (Fig 5.16). Multi-zonal decoration on locally produced closed vessels appears to be a feature at Broglio di Trebisacce (Fig 5.30). Vessel (a) also has two zones of decoration. The lower is a form of filled tongue pattern terminating in a spiral for which a parallel can be found from Rhodes dating to LH IIIC early to middle (Mountjoy 1999, 1041, fig. 427 no.180). The execution of the spiral appears crude in the poor drawing published in Panicelli (1994) but an examination of the photograph shows its much better craftsmanship. The decoration of the upper zone is difficult to identify from the small fragment, but it could be a filled body tongue pattern, a spiral or a wavy band. Vessel (b) appears to have at least five zones, with panels of zigzags above and a lower panel, which may be a form of wavy band. While multi-zonal decoration has been noted in LH IIIC at sites in Messenia (Mountjoy 1999, 354, no.120) it is much more common in Rhodes and Anatolia (5.6.8). It has been suggested that these are a product of the eastern Aegean – western Anatolian interface and originated in Rhodes where it is found on a wide variety of vessels (Mountjoy *pers. comm.*).

A marked decline in the frequency of decoration on fine ware impasto vases in the Subapennine period corresponds to this increase in the number and variety of locally-made Mycenaean vessels. It is likely that these supplanted the traditional fabrics as table wares and in prestigious social contexts in much the same way as in Macedonia (5.5.8).

A further indication of the adoption of Mycenaean techniques can be seen in the use of the wheel to produce local shapes, which were subsequently decorated in Mycenaean-style. Carinated cups, common in the local repertoire, are produced in Broglio di Trebisacce and are linear in decoration (Fig 5.31b). It is thought that the carinated cups from Lefkandi (Fig 5.31a) may have originated in Italy (Popham 1971, 338).

Seven Mycenaean-style coarse ware fragments of LH IIIB date have been reported at **Broglio di Trebisacce** (Wijngaarden 1999, 321), all but one of which, a stirrup jar, were locally-made. Other such finds of coarse ware have been made in substantial quantities at the site of **Vivara** (Re 1993, 331- 334; 1994, 227-228), where 106 fragments have been classed as coarse ware. Much of the earlier coarse ware from Vivara (that predating LH IIIA), appears to have been imported and may have been used as containers for wine. Some may even have reached Vivara as storage vessels used for water supplies during navigation (Re 1993, 331). The pottery is said to compare well with that found in the Acropolis wells in Athens (Mountjoy 1981, 59-63; Vagnetti 1991, 285; Marazzi 1994, 30-31). Coarse ware pottery dating to LH IIIB has also been found

at **Punta le Terrare** (Franco 1996, 1564-1565; Vagnetti 1998, 295-296), at **Porto Perone** (Lo Porto 1963a, 336) and at **Grotta Manaccora** (Marazzi 1993, 402-404). LH IIIC coarse ware has been reported at **Torre Santa Sabina** (Vagnetti 1998, 274).

Analysis of this style of pottery has shown that the some of the coarse ware at **Vivara** was made in the region of Naples[22], which suggests that local production of coarse ware began as early as LH IIIA. Fine ware pottery at Vivara at this period seems to have been imported from the Aegean. Local or regional production of coarse wares has also been proved at **Broglio di Trebisacce, Termitito** and **Casale Nuovo** (Angle *et al.* 1993, 212-213). This local production of coarse ware vessels locally, mainly transport stirrup jars and amphorae (Fig 5.32), is a significant indicator of acculturation. Indeed if we accept that olive cultivation may have been imported to Italy (5.3.3), it may be that the local manufacture of storage vessels reflected the need to find a suitable containers for the olive oil.

Another important category of storage vessels are the Aegean-style *dolii* and imitations used for the storage of agricultural surplus discussed above (5.3.4).

Grey wheel-made pottery appears to have been inspired by the Grey Minyan ware of the Middle Helladic period but certainly belongs to the Late Bronze Age period in this area. This Grey Ware has now been found at a number of sites in southern Italy. These include **Broglio di Trebisacce** (Bellardelli 1984), **Scoglio del Tonno** (Taylour 1958, 126; Biancofiore 1958, 22-27), **Porto Perone** (Lo Porto 1963a, 331-332; 1964a, 195-197), **Satyrion** (Lo Porto 1964a, 195-197); **Torre Castelluccia** (Taylour 1958, 152), **La Motta di Francavilla** (Vagnetti 1984 159-160), **Torre del Mordillo, Bello Luco, S. Maria del Castello di Castrovillari** (Bellardelli 1993, 394), **Amendolara, S. Vito di Pisticci** (De Siena and Bianco 1982b, Cardarelli 1983, 118), **San Domenico – Taranto** (Gorgoglione 1996, 1574-1577), **Coppa Nevigata** (Bellardelli 1984, fig 16) and at **Motta** and **Crotone** (di Domenico 1996). At Bello Luco, S. Maria del Castello di Castrovillari, Amendolara and **Capo Cimiti** (di Domenico 1996) the fact that no other Aegean-style pottery was present suggests that Grey Ware pottery was a style taken and adapted for use by indigenous peoples outside the zones of direct contact with the Mycenaeans. This hypothesis could arguably be backed up by the absence of Grey Ware at sites such as Scalo Di Furno and Termitito. It is possible that Amendolara with its abundant clay beds was the regional production centre for this Grey Ware.

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[22] Petrographic analysis and atomic absorption spectrometry determined that the composition of some of the Aegean type coarse wares compared well with local impasto wares with an origin in the bay of Naples (Jones & Vagnetti 1991, 131; Jones 1994, 307).

The range of shapes that are present in this grey wheel-made pottery reflect both local Italian and Mycenaean shapes (Fig 5.33). Another link with the Aegean is a third class of pottery which is grey and wheel-made with Mycenaean patterns painted on the surface in a dark shade of grey, known as *Grey on Grey* (Belardelli 1984, 148-153, pls.37 & 38:1-2, 4-9). This seems to be largely restricted to the site of Broglio di Trebisacce except for one sherd from S. Maria del Castello di Castrovillari, which is slightly different in style, and a fragment from Coppa Nevigata which is decorated with running spirals (Belardelli 1993, 349).

Unusually wheel-made *impasto* ware was found at **Coppa Nevigata** (Cazzella and Moscoloni 1987, 142) suggested as local by Belardelli (1993, 350)

Pottery fashions in the southern Italian peninsula

Two sites of different character in the southern Italian peninsula have sufficient Mycenaean or Mycenaean-style pottery to attempt to identify trends. Scoglio del Tonno, although excavated at the beginning of the 20th Century, remains exceptional for the quality and quantity of its imported pottery, particularly that dating to LH IIIA2, at which time it was surely one of the most important ports of trade in the region. In contrast, the Mycenaean material from Broglio di Trebisacce is predominantly later and locally-made. Despite problems in dating the material a number of trends can be identified.

The pottery from Scoglio del Tonno presented in the Table below has been classified and dated from the published evidence. It is now possible, with the advances in understanding of the periods of Mycenaean pottery on the Greek mainland since Taylour's publication (1958) to date this pottery more accurately and I have incorporated this revision.[23]

[23] Frequent reference is made by Vagnetti, Bettelli and others who have seen a manuscript, to the unpublished work of Fisher (1998) who studied Mycenaean pottery in Apulia. While publication of her PhD thesis was approved and a publication date set, her manuscript had not been received (July 2003 Åstrom *pers. comm.*). Naturally it is impossible to verify discrepancies between her reported observations and those of Vagnetti or Smith (1987), particularly at the site of Scoglio del Tonno.

TABLE 5.11 MYCENAEAN POTTERY FASHIONS AT SCOGLIO DEL TONNO BY SHAPE AND PERIOD

	III A1	III A2	IIIA2/B	IIIB	IIIC	III C mid	IIIC late	Total
Alabastra, S-S						1		1
BHA						1		1
CANJ		1						1
Collar-neck Jar					1			1
Cups, shallow		2						2
Deep Bowls				3	9			12
Feeding Jug			1					1
Goblets	2							2
Incense burner		2						2
Jugs		1						1
Jugs, small	4	1			3			8
Kraters	2	5	5	9				21
Kylikes	2	7		7	4		2	22
Lekanes					1			1
Pilgrim Flasks		4						4
Piriform Jars	3	30	1					34
Pyxis					1			1
Shallow Bowls				2				2
Stemmed Bowls					1			1
Stirrup Jars	7	7	7	7	6	4	1	39
?	2			1	2			5
Total	**22**	**60**	**14**	**29**	**28**	**6**	**3**	**162**

The Table shows clearly the predominance of Mycenaean pottery dating to LH IIIA2 at the site, with over 35% of the material dating to this period. As one might expect from this early material every item is imported[24]. The range of pottery shapes at the site reflects closely that on mainland Greece, with no notable exceptions. Indeed it is the only site in the western Mediterranean where incense burners, pilgrim flasks, feeding bottles[25] and pyxides have all been found. Stirrup jars and piriform jars are by far the most common shapes suggesting that their contents perhaps were of importance to the inhabitants of this settlement. Indeed the thirty piriform jars from LH IIIA2 may be an indication of a 'regular order', imported for their contents rather than the vessels. These jars can be easily sealed using lead or skin caps or more simply with a form of vine leaf and mud packing such as found as a sealing for the neck of a Mycenaean vase at Assiros in Macedonia (5.5.3).

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[24] Local manufacture of Mycenaean did not begin in bulk until LH IIIB and seems to have been limited at Scoglio del Tonno.

[25] Feeding bottles are produced locally in Sicily but no imported examples have been found as yet (5.2.8).

Stirrup jars too will have been imported for their contents. While both types of jar are very similar in style and presumably were made in a very short period, the motifs used are very variable. Eleven of the stirrup jars from Scoglio del Tonno have the flower motif (FM 18) on their shoulders. Fig 5.34 illustrates the different variations of this motif as found at Scoglio del Tonno, all of which are distinct enough to suggest different artists. This motif has only been found on stirrup jars at two other sites in the western Mediterranean, at Termitito and Treazzano di Monsampolo, each of which has again a distinct variation. The flower motif, which appears to be so popular at Scoglio del Tonno is also found on kylikes, kraters and piriform jars from other sites in Italy (Fig 5.35). In any case the large number of stirrup jars found at Scoglio del Tonno is unparalleled in the central Mediterranean. The similarity and number of these vases suggests regular frequent shipments rather than a single shipment which would be more likely to have identical motifs repeated, as I recall observing in one of the storerooms at Santorini which had just been exposed. Another unusual feature of the Scoglio del Tonno repertoire, even allowing for the early date of much of the material is the strong representation of kraters.

Broglio di Trebisacce

The Mycenaean material presented in the table below has been classified into shape and date after a similar re-evaluation of the published material. It does not include coarse ware vessels, which have already been discussed above. A number of Mycenaean sherds found in the last two years' excavations, which reportedly date to LH IIIC (Vagnetti *pers. comm.*) have not been included since they are only small fragments. The table includes the sherds from 12 imported pots[26] from the site, while the remainder are locally-made. Since such a high proportion of the vessels are made locally, dating them has not always been possible more precisely than 'LH IIIB/C', for example. Indeed the majority are undatable.

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[26] Vagnetti 1982c, 120-121: no 11, Tav 23.11, 122-123: no 16, Tav 24.3; Vagnetti 1982b, 102-103: no 13, Tav 24.2; Vagnetti 1984a, 165-166: no 5, Tav 39.4; Vagnetti 1984b, 174, 177: no 27, Tav 47.8; Vagnetti & Panichelli 1994, 376-377: no 18, Tav 71.1; 378-379: no 46, Tav 72.3, no 48, Tav 72.5, 380, 382: no 76, Tav 73.12, no 78, Tav 73.13, 382-382: no 79, Tav 74.2 384-385: no 102, Tav 75.11.

TABLE 5.12 MYCENAEAN POTTERY FASHIONS AT BROGLIO DI TREBISACCE BY SHAPE AND PERIOD

	IIIA	IIIA2	III A2/B	III B	III B/C	III C	?	Total
?	3	1	2	5	7	10	165	193
Alabastra								
Alabastra, S-S		1						1
Amphoriskoi				1	1			2
Amporoid Krater						1		1
Bowls					1			1
Collar-neck Jars					9	1		10
Cup/Bowls				1	1		4	6
Cups							5	5
Cups, carinated				2		2		4
Cups, conical				1				1
Cups, shallow				1				1
Deep Bowls				1	14	5		20
Jar/Amph.	1			14	16	4	6	41
Jugs				1				1
Kraters						1		1
Kylikes						1		1
Mugs	1			3				4
Stirrup Jars				3			3	6
Total	**5**	**2**	**2**	**33**	**49**	**25**	**183**	**299**

The most prolific periods for Mycenaean pottery at Broglio di Trebisacce are LH III B and LH IIIC, as would be expected since local production of Mycenaean did not begin in any great quantity at the site before this. There appears to be an unusual preference at this site for storage vessels, both amphorae and collar-neck jars (Fig 5.36). This pattern is also reflected in the production of coarse ware pottery and particularly large *dolii*. The locally-made Mycenaean amphorae from the site include a large number of belly handled amphorae (FS 58), a shape which first appears in mainland Greece in LH IIIC (Mountjoy 1996, 202). At least five share the same decorative motif and might have come from the same potter's workshop (Fig 5.37)[27]. Open shapes such as cups and kraters, surprisingly, are poorly represented, while deep bowls are not nearly as common as on most settlement sites. Since small drinking vessels are standard in the local repertoire there was no need to adopt Mycenaean vessels of this size.

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[27] One of these (Fig 5.37a) has been published in a number of places as a *LM IIIB* product. While no exact parallels can be found in published material from mainland Greece or the East Aegean-West Anatolian interface, and this is to be expected with a locally-made vessel, both the decoration and shape are perfectly acceptable as LH IIIC. The confusion may have arisen because of a miscaption in Vagnetti's article in *Wace and Blegen*, where all the vessels have been labelled to LM IIIB. With the possible exception of the cup from Antigori (Vagnetti 1993b, 149, Fig 4.2), which appears to be of Minoan influence, the rest should be classified as LH III and reflect *Mycenaean* fashion.

Finds of Mycenaean pottery in northern Italy and their provenance.

One of the earliest examples in Italy of local imitation Mycenaean may be a cup from **Lake Ledro** in Trento (Barfield 1966). This handmade vessel has a flat base, flaring sides and a strap handle attached to the rim. From the bottom of the handle a narrow rib runs down to the base (Fig 5.28b), features which make it distinct from the local pottery. The shape of the cup is reminiscent of Vapheio cups which were in fashion in LH I and LH II, but without the characteristic rib round the middle. In view of the strong cultural links which the Po valley enjoyed, particularly in the metalwork, it is not inconceivable that this vessel had its prototype in metal. The potter, having seen such an example, and copying it from memory, discovered the weakness of the strap handle on the rim and applied a rib to support it, a feature that is unnecessary when working in metal. Fig 5.28a presents a possible sequence of development starting at the metal prototype and resulting in this local handmade cup.

The strength of Mycenaean influence in southern Italy is also indicated by the wider distribution of small amounts of Mycenaean pottery as far as the Veneto and Po valley. Find spots include the inland settlement sites Fondo Paviani, Fabbrica dei Soci, Castello del Tartaro, Frattesina and Montagnana. The diagnostic sherds are consistent with an LH IIIC middle to late date and a recent analytical study has identified a smaller group whose composition is consistent with manufacture in the Mycenaean heartland, while the composition of a larger group matches locally produced Mycenaean pottery in Apulia and Calabria (Jones *et al.* 2002, 253-254). The fact that the locally produced Mycenaean pottery of southern Italy became a desirable commodity further afield is further evidence of the strength of Mycenaean influence and its relatively late date is evidence of its enduring effect.

No analysis has yet been carried out on the two pieces of linear decorated Mycenaean pottery from Škrip on the island of Hvar in Dalmatia (Gaffney *et al.* 2001), nor on the Mycenaean pottery found in Spain (Martin de la Crux 1988, 1990) to indicate whether these too could have been products of the southern Italian workshops.

5.3.9 Assessment of Level of Acculturation

As discussed in Chapter 3.5 the Late Bronze Age society of southern Italy underwent some significant changes and developments during the period of Mycenaean contact. Before this there is evidence of some form of stratified society but none of settlement hierarchy. Moves towards urbanisation can be seen in the adoption of fortifications and the provision of central storage as well as changes in the pattern of settlements. By the 12th century economic and technological developments were widely adopted in the production of pottery for table ware, coarse ware and storage over most of the region. In all these areas of social activity a strong Mycenaean influence is indicated.

Table 5.13 shows the summary of numerical data for each of the eight domains of social activity in the southern Italian peninsula based on the discussion in the previous sections and also on the tabulation of Mycenaean-style pottery in Table 4.3.

Table 5.14 presents the same information in a visual form allowing a more general impression of the level of acculturation for each of the eight domains of social activity.

TABLE 5.13 ACCULTURATION IN DOMAINS OF SOCIAL ACTIVITY IN THE SOUTHERN ITALIAN PENINSULA

Domains of social activity		Number of sites in S. Italy with features	Total number of sites in S. Italy*	% representation	weighting factor category	weighting factor sub-category	weighted value
RELIGION			75				27
Belief systems		0	75	0	10	4	0
Shrines		0	75	0	10	3	0
Cult objects		1	75	1	10	2	27
SOCIAL ORGANISATION			75				235
Urbanisation		4	75	5	8	4	171
central Storage		2	75	3	8	3	64
FUNERARY CUSTOMS			75				139
Mortuary systems		0	75	0	8	4	0
Grave types		1	75	1	8	3	32
Grave goods (Mycenaean type)		5	75	7	8	2	107
AGRICULTURE			75				192
Crops		2	75	3	6	4	64
Methods of cultivation		0	75	0	6	4	0
Storage methods		8	75	11	6	2	128
DEFENSIVE PROVISION			75				75
Cyclopean circuit walls		0	75	0	4	4	0
Fortifications		7	75	9	4	2	75

Domains of social activity		Number of sites in S. Italy with features	Total number of sites in S. Italy*	% representation	weighting factor category	weighting factor sub-category	weighted value
ARCHITECTURE			75				**11**
[Religious]		**0**	75	0	4	4	0
Public		**0**	75	0	4	3	0
Domestic		**1**	75	1	4	2	11
METAL WORKING (MYC - CYPRIOT)			75				**8**
Workshops		**0**	75	0	3	4	0
Moulds		**0**	75	0	3	4	0
Finished product		**1**	75	1	3	2	8
Ingots		**0**	75	0	3	1	0
POTTERY			75				**611**
Kilns/workshops		**4**	75	5	2	4	43
[Dolii/pithoi/storage vessels]		**0**	75	0	2	3	0
Locally-made Mycenaean coarse ware		**8**	75	11	2	3	64
Locally-made Mycenaean fine ware		**54**	75	72	2	2	288
Grey Ware (wheel-made)		**14**	75	19	2	2	75
Local/Mycenaean mixed		**3**	75	4	2	2	16
Imported Mycenaean		**47**	75	63	2	1	125

* based on the number of sites listed in catalogues by Bettelli 2002 & Vagnetti 2004.

TABLE 5.14. A READING OF THE COMPARATIVE LEVEL OF ACCULTURATION IN S. ITALY

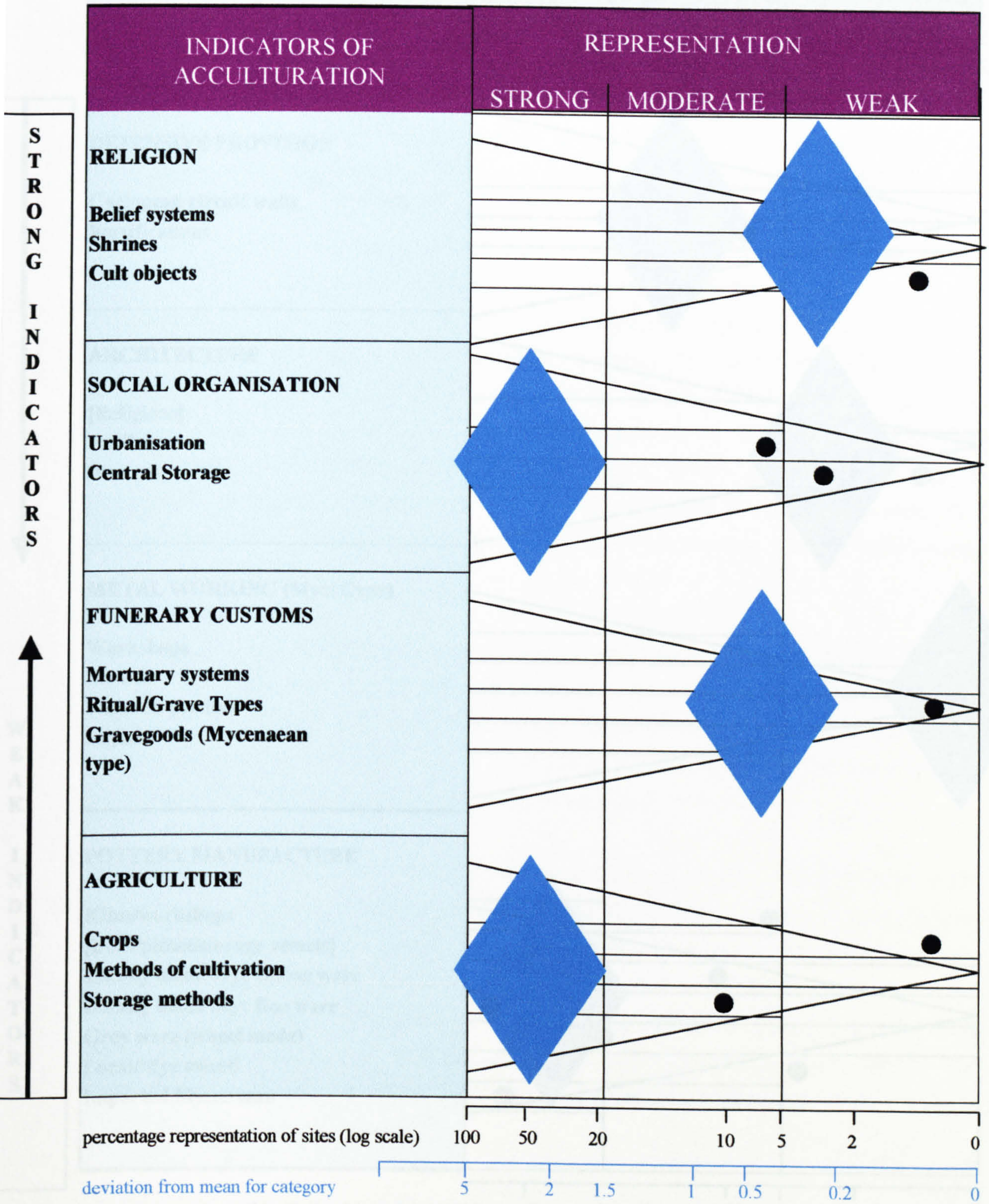
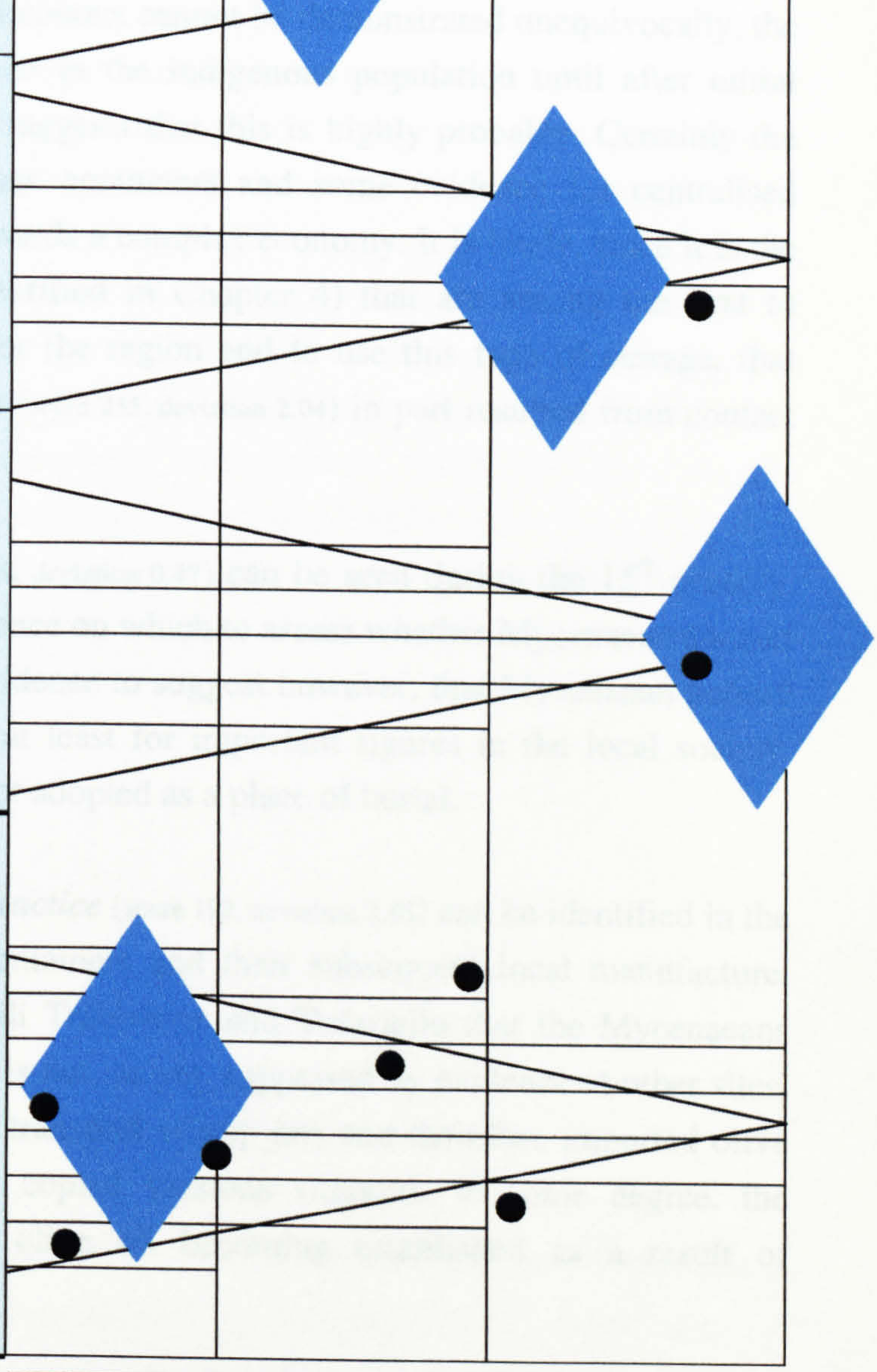


TABLE 5.14. (CONT). A READING OF THE COMPARATIVE LEVEL OF ACCULTURATION IN S. ITALY

WEAK INDICATORS

INDICATORS OF ACCULTURATION	REPRESENTATION: STRONG / MODERATE / WEAK
DEFENSIVE PROVISION **Cyclopean circuit walls** **Fortifications**	
ARCHITECTURE **[Religious]** **Public** **Domestic**	
METAL WORKING (Myc/ Cypr) **Workshops** **Moulds** **Finished product** **Ingots**	
POTTERY MANUFACTURE **Kilns/workshops** **[Dolii/pithoi/storage vessels]** **Locally made Myc coarse ware** **Locally made Myc fine ware** **Grey ware (wheel made)** **Local/Myc mixed** **Imported Mycenaean**	



percentage representation of sites (log scale) 100 50 20 10 5 2 0

deviation from mean for category 5 2 1.5 1 0.5 0.2 0

Only one site in the southern Italian peninsula, Scoglio del Tonno, has evidence for acculturation in the domain of *religion* (score 27, deviation 0.37): four figurines in the same deposit. The two fragments of Mycenaean figurines, particularly the late Ψ type with 'blouse' top, are unusual. The adoption into the local culture of the techniques for the manufacture of similar figurines is shown by the presence of a locally-made figurine whose head is fashioned in the same way as Mycenaean prototypes. Despite the lack of other Mycenaean ritual evidence these are a persuasive indication of acculturation.

There is sufficient evidence at several sites to indicate a move towards urbanisation. Although a direct link to Mycenaean contact cannot be demonstrated unequivocally, the fact that these changes did not occur in the indigenous population until after initial contact with the Mycenaean world suggests that this is highly probable. Certainly the widespread adoption of giant storage containers and some evidence for centralised storage strongly suggests a move towards a complex economy. It is likely, since it is the possible ports of trade (already identified in Chapter 4) that are among the first to become the dominant settlements for the region and to use this type of storage, that these changes in *social organisation* (score 235, deviation 2.04) in part resulted from contact with the Mycenaean world.

Changes in *burial practices* (score 139, deviation 0.47) can be seen during the 15th century, but there is a distinct paucity of evidence on which to assess whether Mycenaean contact had any effect. There is sufficient evidence to suggest however, that Mycenaean pottery had become part of the burial rite, at least for important figures in the local society. Unlike Sicily chamber tombs were not adopted as a place of burial.

Significant changes in *agricultural practice* (score 192, deviation 2.85) can be identified in the adoption of Aegean-style storage containers and their subsequent local manufacture. There is some evidence at Broglio di Trebisacce and Tufariello that the Mycenaeans introduced olive cultivation, but this is not, as yet, supported by evidence at other sites. The decline in numbers of imported transport stirrup jars and therefore imported olive oil and the introduction of locally copied versions supports, to some degree, the hypothesis of local production of olive oil becoming established as a result of continuing Mycenaean contact.

Changes in *defensive provision* (score 75, deviation 1.33) are indicated by the appearance of fortification walls at the end of the 13th century, particularly at sites which have been identified as possible ports of trade. The best parallels for these fortifications can be found on mainland Greece, and it is likely they were inspired by Mycenaean prototypes.

Little influence can be identified in *architecture* (score 11, deviation 0.34), though some domestic structures do have Aegean traits. Evidence for metal objects in Italy is substantial but since both the local and Mycenaean type evolved to form a *koine* shared in many regions, it is difficult to assess the level of impact occasioned by trade with the Mycenaean world but the increased economic activity this generated may well be responsible for the increased numbers of bronze objects in the 12th century. Only one object, the sword hilt in the Surbo hoard, is characteristically Mycenaean. The score for *metalworking*, (score 8, deviation of 0.05) probably seriously under-represents Mycenaean influence in this sphere.

The acculturation that may be detected in a number of other aspects in Italy is most evident in the sphere of *pottery* (score 611, deviation 1.92). Local manufacture of pottery using Mycenaean technology, began in a number of different centres during LH IIIB. Mycenaean prototypes were copied directly and Mycenaean shapes were incorporated into the local vessel repertoire (particularly the carinated cup). Vessels for storage of liquids, such as collar-neck jars and belly-handled amphorae are types that were readily adopted for use locally. The production of Mycenaean wares was not restricted to fine ware vessels but also extended to functional coarse wares, again specialized storage containers, a feature which is most marked in this region. Popular imported vessels vary according to period, but there is an unusual preference for storage jars. Deep bowls are moderately represented and it may be that in some circumstances Mycenaean vessels were adopted into 'social' use in the local culture, which may already have been established (6.4.8).

Response to Mycenaean contact in the southern Italian peninsula

In southern Italy with its relatively limited economic resources the impact of Mycenaean contact acted as a stimulus to the development of new social systems, agricultural and economic organisation, technology and trade. These were not, however, directly modelled on Mycenaean prototypes but comprised a distinctive local response. It is likely that by the 12th century the possible ports of trade in southern Italy were no longer primarily passive recipients of Mycenaean influence but active participants in

increasingly vigorous trade networks, particularly in the export of locally produced Mycenaean pottery to other regions. The depth of the changes resulting from the interaction of Mycenaean ideas and local traditions can be seen in the persistence of several of them into the Iron Age period. Although there is no evidence that contact was maintained between Greece and Italy through the early stages of the Dark Age, the foundation was already laid for the successful renewal of contact in the 9th century BC and the systematic colonisation that followed.

5.4 EPIRUS AND ALBANIA

Without significant natural mineral resources or potential for agricultural surplus, there was little in Epirus and Albania to arouse the interests of Mycenaean traders, except in supplying the distinct demand for Mycenaean weapons, which are better represented here than in any of the other areas of this study. Clearly these were seen as prestigious items by the elite members of what are presumed to be small social units in this rugged landscape. The number of such weapons is all the more remarkable given that many of them are chance finds and systematic research has only been conducted on a limited scale.

Mycenaean-style artefacts have been found mainly in isolated grave contexts while the limited exploration of settlement contexts with or without Mycenaean finds give only the barest picture of the society and economy of this region. The remarkably early date of Mycenaean contact in this area contrasts with its limited extent. It seems reasonable to suggest that the coast of this region provided harbours for ships bound for Italy and that the contact here is subsidiary to that in southern Italy and regions further west. While the pattern of Mycenaean finds in Albania is much more sporadic than in Epirus, there is no obvious boundary to separate the two and on the whole the objects imported/imitated reflect similar interests in both regions.

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5.4.1 Religion

So far no evidence of Mycenaean cult objects or religious practices has been identified in either Epirus or Albania. A prehistoric deposit including 200 Mycenaean sherds was found below the Hellenistic Bouleuterion and Stoa (E_2) at Dodona (Dakaris 1967a, 32-37; 1969, 26-35). Most of the sherds may be given an LH IIIB date and the range of shapes represented is more consistent with a settlement site than a sanctuary (below, 5.4.8). There is nothing to suggest that their presence underneath these buildings owes anything to the existence of a prehistoric sanctuary. Dodona is simply the most extensively excavated site with Bronze Age finds in Epirus.

5.4.2 Social Organisation

The extent of research in these regions is still very limited, with few systematic excavations conducted and fewer still published. The nature of social organisation would in all probability be different from other areas since the nature of the terrain does not favour the development of major centres of population. There are none of the indications of urbanisation which can be seen in Sicily and southern Italy, for example, and in any case only in the Hellenistic period did 'tribal' organisation give way to town-based societies. While the availability of Mycenaean weapons may have enhanced the ability of local leaders to demonstrate status and prestige, there is no indication of any effect.

5.4.3 Funerary customs

A single well constructed tholos tomb was uncovered in 1937 at **Kiperi** (Fig 5.39a), a site some 3km east of Parga in Epirus. The tomb had been robbed in antiquity but excavations in 1960 produced quantities of imported Mycenaean pottery, including kylikes, cups and stirrup jars as well as locally manufactured material, such as alabastra (Dakaris 1960b, fig. 4) dating between LH IIIA and LH IIIA2-B (Papadopoulos 1981b).

A construction date of LH IIIA1 has been suggested for the tomb. The architectural style of the tholos, its modest size, its pebble floor, both in the dromos and chamber and the absence of burial pits suggest a close parallel with the Agios Ilias tholoi in Aetolia (Hope Simpson 1981, 177; Papadopoulos 1981b, 22-23).

Survey work in the area around the Kiperi tholos tomb between 1993 and 1995 (Tartaron & Zachos 1999), has provided further information on the area and highlighted the importance of a stretch of cyclopean walling that was originally discovered in the 1960s. This dry-stone wall, 1.3m in thickness and built of roughly-dressed boulders, extends for over 20m beside the tholos tomb. Unfortunately no systematic clearance of the vegetation in the area has occurred so it has not been possible to ascertain its relation to the tholos or to any other structures in the area. This wall, traces of other remains on a level terrace to the east of the tholos and a moderate quantity of Mycenaean pottery recorded by the survey, though offering no secure date for the area, suggest that there was a settlement of some size in this vicinity.

The adoption of one of the most distinctive of Mycenaean-style burial monuments at Kiperi is a phenomenon not found in either the central Mediterranean or Macedonia. I incline to the belief that it is but the most extreme example of the adoption of a status symbol by some member of the local elite.

To date some twenty cist graves containing some Mycenaean or Mycenaean-style artefacts have been excavated in Epirus, many of which were disturbed in antiquity. On the whole the cist graves were found individually, with occasional groups of three or four. Each cist contained multiple burials with some evidence of repeated use over a period of time. Only three of these groups, all near Ioannina, have been published to any extent – Mazaraki (Vokotopoulou 1969; Wardle, K.A., 1977; Kilian-Dirlmeier 1993), Kalbaki (Dakaris 1956; Soueref 1986; Wardle 1993; Kilian-Dirlmeier 1993) and Kastritsa (Dakaris 1964; Dakaris 1966; Soueref 1986).

A single cist grave (Fig 3.16b) was uncovered at **Mazaraki** in 1968 on the south slope of a hill overlooking the Thyamis river. It contained two adult males and one adult female and pottery of Mycenaean provenance and inspiration including a stirrup jar with multiple stem decoration, dating on stylistic criteria to LH IIIB (Vokotopoulou

1969, 199-200; Wardle, K.A., 1977, 191). Other Mycenaean sherds including a fragment of a plain kylix stem, found in the fill of the grave, have all been assigned to LH IIIC (Vokotopoulou 1969, 202-3). Other grave goods included a cruciform sword belonging to Sandar's Class Di, (LH IIIA2-B), three daggers and two leaf-shaped spear heads.

At **Kalbaki** a group of four cist graves was discovered within the limits of a military base. The grave goods reflect their more northerly orientation with the exception of one grave which contained two objects of probable Mycenaean influence – a Class F short sword (Wardle 1977, fig.13a) and a leaf shaped spearhead (Hammond 1967b, fig. 23G). Vokotopoulou suggests a date of LH IIIB for the sword (1969,194) while Wardle, K.A., (1977, 193) prefers a date no earlier than LH IIIB-LH IIIC early. This example is flanged on one side only, a variation which suggests that it was manufactured locally or at a provincial centre by a craftsman who only had one half of the mould.

Three further cist graves were excavated at **Kastritsa,** two near the modern village and the third outside the mouth of the Palaeolithic cave. One of the two near the village contained a stirrup jar dating to LH IIIB[16] (Soueref 1986; Dakaris 1966, 288). The cist grave near the cave produced a Class F dagger with a T-shaped end to the hilt, dated to LH IIIB (Dakaris 1967b; Vokotopoulou 1969, 193-194). A survey of the surrounding area yielded further fragments of Mycenaean pottery including imported kylikes (Soueref 1986, figs 36.8, 30-40) and, significantly, a handmade imitation of a Mycenaean two handled amphoriskos assigned to a similar date (Dakaris 1964; Soueref 1986, tab. VIII).

Near modern Prevesa, at the site of **Skaphidaki** on the Agios Thomas peninsula, overlooking the natural harbour of Ormos Pogonitsas, a cist grave was uncovered in 1987 (Andreou 1987, 319-320; Andreou 1994, 243). The grave was found during road construction works and contained two complete handmade local vessels and two bronze pins that have been dated as early as the Shaft Grave period, MH III to LH I/II (Kilian-Dirlmeier 1984, 39-40). Some 80m further to the west, in a road cutting revealing the stratigraphy, a layer containing local handmade pottery, as well as Mycenaean sherds was noted in 1993. The fragments of Mycenaean pottery collected, around 25 in number

[16] Dakaris published this as an LH IIIC stirrup jar but I see no need to date it this late.

(Tartaron & Zachos 1999, 67) included kylikes, kraters, deep bowls and stirrup jars reported to have a chronological range of LH IIIA1 to LH IIIC, which suggest a settlement in the area. The location of Skaphidaki is particularly interesting as it dominated the entrance to the Ambracian gulf. With safe natural harbours nearby, a settlement here must surely have played a significant role in controlling the trade into this region.

The presence of Mycenaean material in these isolated cist graves located in inland positions far removed from any possible ports of trade on the coast is interesting, though the exact routes by which goods, so valued in the region, reached the interior can not be ascertained. A further point to note is that the contents of these graves include a wider range of vessels than one might expect from a typical Mycenaean burial assemblage, with few alabastra and no piriform jars. Mycenaean vessels were perhaps used because they *were* 'exotic' – even if poorly imitated rather than from any knowledge of Mycenaean ritual.

At **Barç** in Albania a tumulus (Barç I) of 181 burials was excavated of which only six belong to the Bronze Age (Andrea 1985, 23 (V18), 27&28 (V47), 31 (V65), 42 (V146), 43 (V149), 44&45 (V162)). The contents of these graves offer an interesting insight into the value of Mycenaean/Mycenaean-style artefacts to the indigenous population of the region. Five of the graves contained metal artefacts including a Mycenaean sword (V18) in conjunction with a Mycenaean amphoriskos of LH IIIC date; a Naue II sword and double spiral finger ring (V146); a cruciform sword with bent hilt and spearhead (V162) which was found with a Matt Painted cantharos with pendant spirals of similar style to those found in graves at Aiani in western Macedonia, and fragments of wire jewellery (V65). To the three complete Mycenaean vessels found in the graves, the amphoriskos (V18), stirrup jar with peculiar elongated spout (V47) and deep bowl (V65) may be added the fragments of a fringed stirrup jar, which were the only contents of V149 (5.4.8). All the pottery is of poor quality and likely to have been made in workshops outside the Mycenaean heartland. It may all be dated to LH IIIC. It is significant that all the graves in the tumulus dating to the Bronze Age are associated with Mycenaean-style artefacts and suggest that this material played a significant role in the burial practices of the local district.

5.4.4 Agriculture

So far no evidence can be cited for any influences in agricultural practices in these regions. In many areas the subsistence economy would most probably have been biased towards the pastoral as it is today.

5.4.5 Defensive provision

Fortified settlements using the construction techniques of the Mycenaean heartland, are not numerous in Epirus. Traces of fortification walls have been found at **Ephyra, Kastriza** and **Agia Eleni**. The massive wall found at the site of **Kiperi**, running alongside the tholos tomb, may also be considered as evidence of a heavily fortified site (5.5.1). All have some trace of association with Mycenaean artefacts, although without excavation the date of their construction is a matter of speculation. Their appearance principally in an area which is likely to have been the primary focus of Mycenaean contact is, however, suggestive and, pending further discoveries, it may reasonably be assumed that they resulted from this contact. Since it is unlikely that there were enough Mycenaean settlers (if any) it must be presumed that the local leaders demonstrated their power and prestige by exploiting resources of manpower in emulation of Mycenaean practice, but perhaps without the same function.

At **Ephyra,** a site which once dominated the entrance to the Acheron valley, the fortification walls are built of large, irregular and roughly hewn blocks using smaller stones as infill (Fig 5.40a) in a manner reminiscent of the cyclopean walling at Teichos Dymaion (Mastrokostas 1965), Tiryns (Kilian 1988) and Gla (Iakovides 1989). Moreover, the elaborate southern entrance of the lower enceinte, with its gate flanked by offset projections, is not dissimilar to the South Gate at the citadel of Gla (Iakovides 1989, 59-61, plan 5, pl.26).

Kastriza is located on a low hill in the flood plain of the Vouvos river, a tributary of the Acheron. There is a massive wall, built using cyclopean masonry techniques (Fig 5.40b). The wall, three metres thick in parts, was constructed with a thick rubble core using dressed blocks, boulders and smaller interstitial stones as facing. This fortification wall originally encompassed all but the south side of the hill, where protection must have been deemed unnecessary. The location of this site midway between Ephyra, possibly a port of trade for the region, and the site of Kiperi on the coast further to the north, with its tholos and fortification walls, suggests that it might have been a point on a trade route between them offering a safer overland passage at times when the sea route was impassable, due to bad weather or even piracy, as well as a point of call on a route heading further inland.

Agia Eleni, a long ridge at the mouth of the Acheron River, forms a natural breakwater and offers a strategic position to command movement in and out of the bay. During the Late Bronze Age this ridge was in fact an island protecting the mouth of the Acheron. Two parallel sections of wall, built in the same manner as those at Ephyra, were discovered during an intensive survey of the area by the Nikopolis project (Tartaron & Zachos 1999, 66). It has been suggested that these were retaining walls of Late Bronze Age date, forming terraces for agricultural or domestic exploitation.

5.4.6 Architecture

Apart from the fortification walls already mentioned in the previous section there are too few traces of architecture found in Epirus or Albania to justify any discussion, let alone identify Mycenaean influences.

5.4.7 Metalworking

A sizeable collection of bronze objects (some of which have already been noted above) has been recovered from tombs or are chance finds which presumably represent tombs. These form four groups – swords, spearheads, knives and ornaments, of which only a

proportion are specifically Mycenaean. These include swords of Sandar's Classes A, C, D and F and one split-socketed spearhead. Of the remainder, the Naue II sword, well represented in Albania (Kilian-Dirlmeier 1993, 94-100), is ultimately of central European origin and it is impossible to determine whether they are the result of influence from the north or the result of Mycenaean influence after their widespread adoption in southern Greece from the late 13th century (Catling 1956). The numerous small, flame or leaf-shaped cast-socket spearheads are a feature of Epirus, Albania and Macedonia (see Aiani below) and exhibit some distinctively local characteristics (*e.g.* faceting)[17]. These belong to a class widespread in central European contexts (Avila 1983). Although they occur occasionally in southern Greece it is unlikely that this was the source of their inspiration. The popularity of these types, however, reflects the same fashion among the 'leaders' of the local population for the inclusion of weapons in graves, which encouraged the acquisition of the Mycenaean types.

The knives found in these graves are almost exclusively of the 'simple' types without the haft reinforcement typical of Mycenaean knives, and derive from forms already in use in the Middle Bronze Age. The ornaments are all of distinctly local character and of forms unknown in southern Greece.

The earliest of the swords is a Mycenaean bronze rapier, typical of the Shaft Grave examples of Sandar's Class A found at **Pazhok** in central Albania in association with a Vapheio cup with ripple decoration (Islami & Ceka 1964, 96 pl. vi.1; Prendi 1982, 212). Similar examples were also recovered from **Vajzë** (Prendi 1982, 212, fig. 6) in south west Albania and from **Midhe** (Kilian-Dirlmeier 1985, 251-252) in northern Albania. It seems that these weapons were highly prized in the region and sometimes copied with variations by local craftsmen.

The fashion for imported Mycenaean swords seems to continue as the swords themselves developed. Horned swords (Class C) dating to LH IIB-LH IIIA1 have been found at a number of sites with no sure context, including those found at **Dodona** and **Peramatos** in Epirus (Sandars 1963). Only two have a certain context. One was found in a tomb at **Komsi** (Prendi 1982, 220, fig 11:2) and the other was part of the hoard,

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[17] These comes from sites such as Mazaraki, Parga and Paramythia in Epirus and Vodhinë and Barç in Albania (Wardle 1993, 136, fig.9) as well as from the Aiani district (see below 5.5.7).

along with a leaf-shaped spearhead, discovered at **Varibop** (Korkuti 1984, fig 1; Kilian-Dirlmeier 1985), both in Albania.

A Class D sword was found in a cist tomb at **Mazaraki** in Epirus together with an LH IIIB stirrup jar (Vokotopoulou 1969, 192, fig.4). Since, further south, these swords were not manufactured after the 14th century, this one must have remained in use long after its production had ceased in the Mycenaean heartland. Local production of swords cannot be documented before the copies of cruciform swords produced in Albania, examples of which have been found at **Germenj**, **Bruç**, **Nenshat**, **Rrethe-Bazje** and **Stogj** (Prendi 1982, 220, fig.11:1,3-5; Kilian-Dirlmeier 1985, 254).

By LH IIIB, Class F swords, with a cast T-shaped hilt, reached Epirus as at **Kastritsa** (Vokotopoulou 1969, 193-194; Wardle 1993, 128, fig. 4) and **Nekyomanteion** (Dakaris 1963, 153, fig. 4, pl. 187e) and began to be copied locally with a number of variations from the norm. This can be seen in the swords from **Kalbaki** (Fig 5.53a&b; Dakaris 1956, 115, fig.1; Vokotopoulou 1968, 294, pl. 235:β:B; Wardle 1977, 191, fig. 13) and **Paramythia** (Fig 5.53c; Dakaris 1967b, fig. 3, pl. 1:5; Dakaris 1965, fig. 2; Wardle 1972, 236-238, 533-534, no. 922, fig. 147), which have flanges on one side of the hilt only (Kilian-Dirlmeier 1993, 90). One of the examples from Kalbaki (Fig 5.53ai & ii) has no rivet holes, but tabs were used to secure the hilt in place. It has been suggested that only half a mould was used in their production, which would explain the absence of the flanges on the other side. A further peculiar version of this type of sword was discovered in a cist grave at **Këlcyra** (Bodinaku 1988, 34-49, fig.2, pl.1) in Albania. This sword has the cruciform extensions at the head of the blade normal on Type D swords, the large T-hilt characteristic of Type F swords and additional fine grooves along the blade that are not commonly found on this type of blade.

The only example of a long split-socketed spearhead of Aegean-style is reported to come from the **Zagoria** district without context (Vokotopoulou 1968, pl. 237a:γ)

All these finished products illustrate the strength of the demand for Mycenaean weapons throughout the Late Bronze Age while the locally produced variants clearly indicate the existence of local workshops at different periods both in Epirus and Albania. Two workshops, one for each region, have been included in the tables as a

minimum. Their existence indicates a desire for emulation that could not be satisfied simply by acquisition from external sources.

5.4.8 Pottery manufacture

The settlement at **Dodona** has produced a good range of imported Mycenaean. The pottery repertoire reflects the normal range of shapes found in settlements in the Mycenaean heartland, including kylikes, deep bowls, kraters, stirrup jars, piriform jugs and amphorae. Elsewhere the pottery is rarely imported and many of the graves have locally-made imitations of Mycenaean vessels. These include a very 'flat' alabastron found in the tholos at **Kiperi** (Fig 5.39b), a peculiar handmade imitation of a two-handled amphoriskos from **Kastritsa,** and a crude alabastron from **Mazaraki**. The stirrup jar found in a cist grave at Kastritsa is also unusual enough to be classed as a local copy of a Mycenaean import.

Local handmade imitations of Mycenaean kylikes are known from **Dodona** and **Kastritsa**. Manufactured in the local sandy orange fabric and fired at low temperature, they have very narrow bowls (Fig 5.41b). It is thought that they may be derived from the narrow conical kylikes with ribbed stem, known from late IIIC sites such as Exalophos in Thessaly (Fig 5.41a), Ithaka, Nichoria and Amyklae (Coulson 1991), but they do not replicate the ribbed stem. A fragment of the bowl of a similar locally-made kylix has been found at Toumba Thessalonikis, in an LH IIIC context (Fig 5.41c). A further example comes from Assiros (Fig 5.41d).

There is no evidence of a Mycenaean production centre using Mycenaean technology in Epirus and it may be that these wheel-made examples were imported from areas less marginal to the Mycenaean world. The handmade imitations may well have been made by the same potters who made the local wares. The presence of so many imitations of both types in funerary contexts is significant and reflects some knowledge of Mycenaean practices, if not the desire to replicate them completely. In contrast to neighbouring Macedonia, there is no indication of the adoption of Mycenaean drinking sets for communal feasting, though it is impossible to tell whether this indicates that such practices were never part of the social framework of the communities or that they

never acquired the taste for Mycenaean pottery in this context. Indeed the further away from the regular trade routes, the more diffused the concept of what constitutes 'Mycenaean' becomes. Nevertheless its presence demonstrates some role in prestige contexts in the same way as the weapons do.

Mycenaean-style pottery from Albania, although limited in quantity, reflects a similar pattern. Early imports include a LH IIA ripple decorated Vapheio cup (Fig 5.42a), which was found in a tumulus burial at **Pazhok**. A much later stirrup jar from **Barç** with hatched triangles on the shoulder has an unusually long spout, suggesting manufacture outside the Mycenaean heartland, but probably not in Albania itself. A LH IIIC fragment decorated with fringed concentric semicircles also from Barç (Fig 5.42c) probably comes from the shoulder of a stirrup jar. Its closest parallels come from Achaea and since no examples of this type of decoration have been found in Macedonia so far, it supports the use of a trade route via Epirus.

Pottery Fashions in Epirus and Albania

Since the quantity of Mycenaean pottery found in these areas is comparatively small no valid attempt can be made to identify fashions in pottery shapes or motifs.

5.4.9 Assessment of Level of Acculturation

As discussed in Chapter 3.6, the Late Bronze Age societies of Epirus and Albania do not seem to have advanced or changed significantly during this period. The elite members of the fragmented local communities developed a taste for prestigious Mycenaean weaponry which accompanied them to their graves. There are no signs of urbanisation during this period, though in SW Epirus the introduction of fortification may demonstrate aspects of peer rivalry among local leaders.

Table 5.15 shows the summary of numerical data for each of the eight domains of social activity in Epirus and Albania based on the discussion in the previous sections and also on the tabulation of Mycenaean-style pottery in Table 4.4.

Table 5.16 presents the same information in a visual from allowing a more general impression of the level of acculturation for each of the eight domains of social activity.

TABLE 5.15 ACCULTURATION IN DOMAINS OF SOCIAL ACTIVITY IN EPIRUS AND ALBANIA

Domains of social activity		Number of sites in Epirus and Albania with features	Total number of sites in Epirus and Albania*	% representation	weighting factor category	weighting factor sub-category	weighted value
RELIGION			70				**0**
Belief systems		**0**	70	0	10	4	0
Shrines		**0**	70	0	10	3	0
Cult objects		**0**	70	0	10	2	0
SOCIAL ORGANISATION			70				**0**
Urbanisation		**0**	70	0	8	4	0
central Storage		**0**	70	0	8	3	0
FUNERARY CUSTOM			70				**251**
Mortuary systems		**1**	70	1	8	4	46
Grave types		**0**	70	0	8	3	0
Grave goods(Mycenaean type)		**9**	70	13	8	2	206
AGRICULTURE			70				**0**
Crops		**0**	70	0	6	4	0
Methods of cultivation		**0**	70	0	6	4	0
Storage methods		**0**	70	0	6	2	0
DEFENSIVE PROVISION			70				**91**
Cyclopean circuit walls		**4**	70	6	4	4	91
Fortifications		**0**	70	0	4	2	0

Domains of social activity		Number of sites in Epirus and Albania with features	Total number of sites in Epirus and Albania*	% representation	weighting factor category	weighting factor sub-category	weighted value
ARCHITECTURE			70				**0**
[Religious]		**0**	70	0	4	4	0
Public		**0**	70	0	4	3	0
Domestic		**0**	70	0	4	2	0
METAL WORKING (MYC – CYPRIOT)			70				**197**
Workshops		**2**	70	3	3	4	34
Moulds		**0**	70	0	3	4	0
Finished product		**19**	70	27	3	2	163
Ingots		**0**	70	0	3	2	0
POTTERY			70				**106**
Kilns/workshops		**0**	70	0	2	4	0
[Dolii/pithoi/storage vessels]		**0**	70	0	2	3	0
Locally-made Mycenaean coarse ware		**0**	70	0	2	3	0
Locally-made Mycenaean fine ware		**6**	70	9	2	2	34
Grey Ware (wheel-made)		**0**	70	0	2	2	0
Local/Mycenaean mixed		**2**	70	3	2	2	11
Imported Mycenaean		**21**	70	30	2	1	60

*based on the number of reported Bronze Age sites after Tartaron & Zachos 1999, 58; Wardle 1972, 265-267 and Wardle 1993, 119.

TABLE 5.16. A READING OF THE COMPARATIVE LEVEL OF ACCULTURATION IN EPIRUS AND ALBANIA

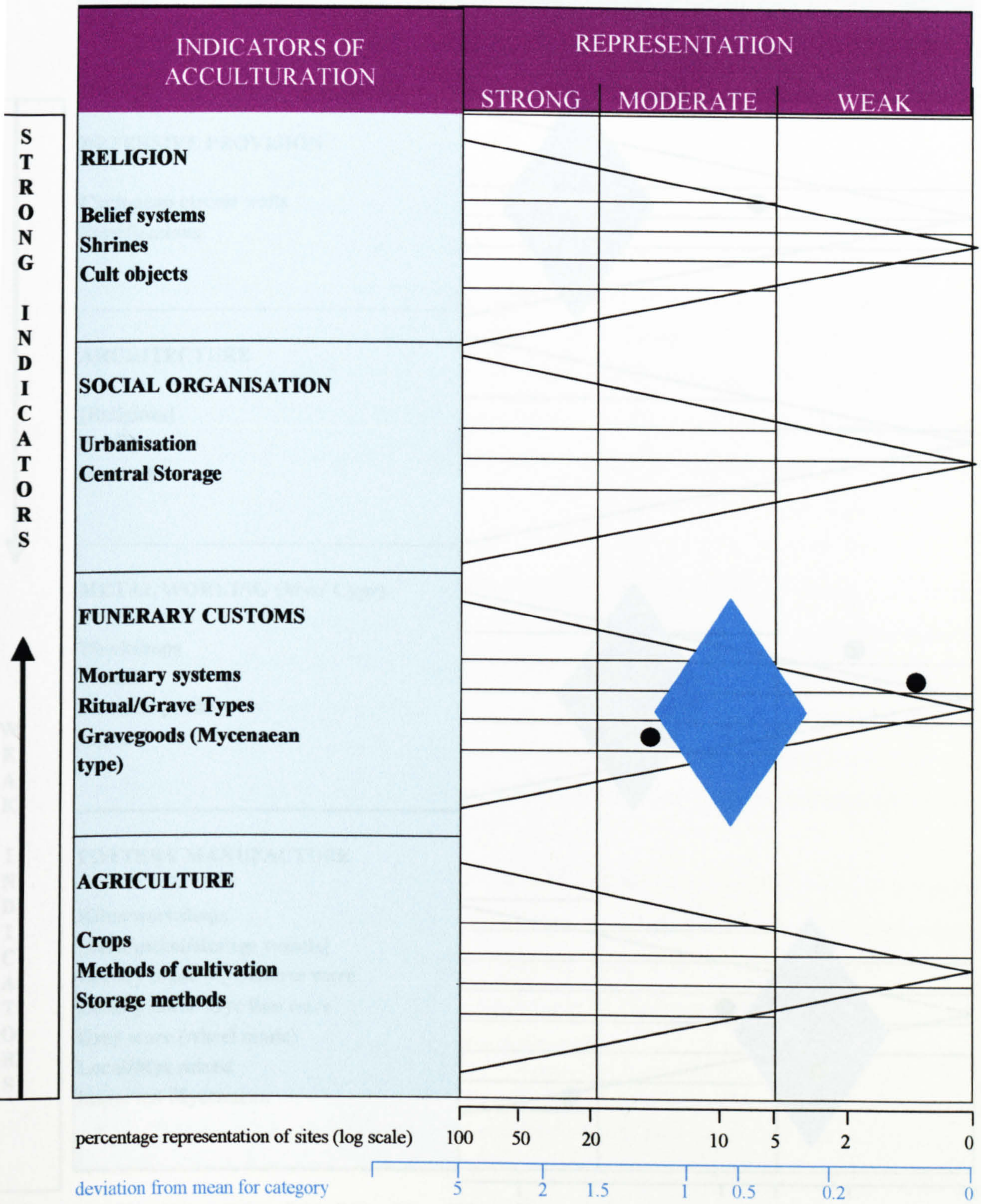
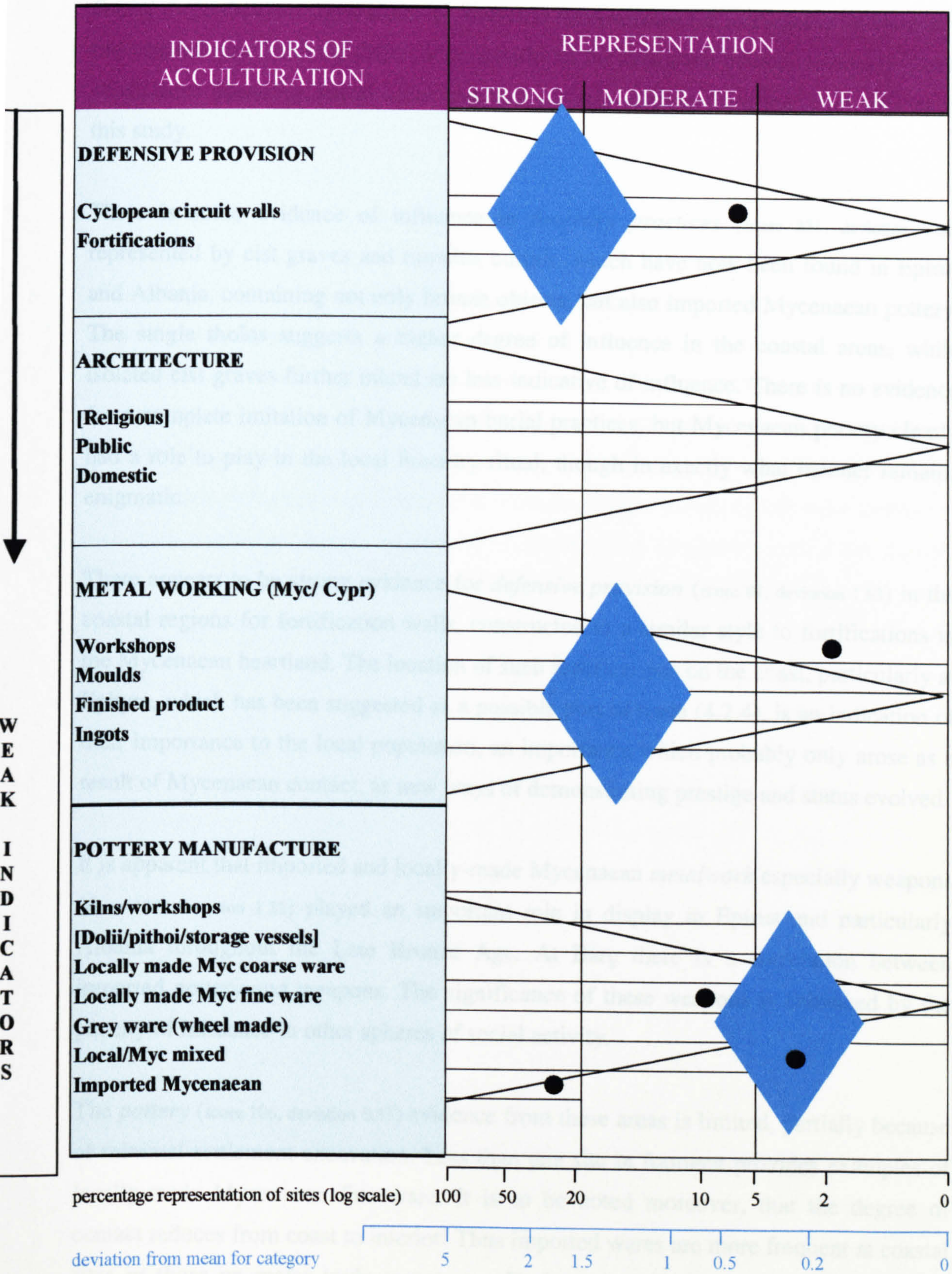


TABLE 5.16 CONT.). A READING OF THE COMPARATIVE LEVEL OF ACCULTURATION IN EPIRUS AND ALBANIA



No evidence exists in Epirus and Albania for acculturation in the domains of *Religion*, *Social Organisation*, *Agriculture* or domestic *Architecture* (all with scores of 0), though it must be reiterated that the different geography of the area must have dictated a different subsistence economy, social order and thus material culture from the other regions of this study.

There is some evidence of influence in *funerary practices* (score 251, deviation 0.86) represented by cist graves and tumulus burials, which have now been found in Epirus and Albania, containing not only bronze objects, but also imported Mycenaean pottery. The single tholos suggests a higher degree of influence in the coastal areas, while isolated cist graves further inland are less indicative of influence. There is no evidence for a complete imitation of Mycenaean burial practices, but Mycenaean pottery clearly had a role to play in the local funerary ritual, though in exactly what manner remains enigmatic.

There appears to be strong evidence for *defensive provision* (score 91, deviation 1.63) in the coastal regions for fortification walls, constructed in a similar style to fortifications in the Mycenaean heartland. The location of such fortifications on the coast, particularly at Ephyra, which has been suggested as a possible port of trade (4.2.4), is an indication of their importance to the local population, an importance which probably only arose as a result of Mycenaean contact, as new ways of demonstrating prestige and status evolved.

It is apparent that imported and locally-made Mycenaean *metalwork* especially weapons (score 197, deviation 1.32) played an important role in display in Epirus and particularly Albania throughout the Late Bronze Age. At Barç there is a correlation between imported pottery and weapons. The significance of these weapons is enhanced by the paucity of influence in other spheres of social activity.

The *pottery* (score 106, deviation 0.33) evidence from these areas is limited, partially because of minimal settlement excavation. Less than one site in fourteen provides examples of locally-made Mycenaean fine ware. It is to be noted moreover, that the degree of contact reduces from coast to interior. Thus imported wares are more frequent at coastal sites or those on major trade routes, *e.g.* Dodona. Locally copied Mycenaean wares display a degree of competence directly related to the distance from ports and major

trading centres, so that the further a site is from direct influence, the less application there is of the technology of manufacturing Mycenaean pottery. As already noted, the pottery reflects a demand but it is not clear which domain of social activity generated this.

Response to Mycenaean contact in Epirus and Albania

Without the evidence of metalworking there would be little to suggest that Mycenaean contact had much impact on the societies of Epirus and Albania, whose lives continued over this five hundred year period with little change. Their aspirations were fostered by knowledge of Mycenaean weaponry, and throughout the period the elite members of these fragmented social groups found the necessary resources to acquire fine examples, through trade, gift exchange or local manufacture. When the supply was restricted or the necessary resources scarce, idiosyncratic copies were produced within the region. Mycenaean pottery was more favoured for funerary display than 'daily' use or for social activities such as feasting or drinking.

5.5 MACEDONIA

In **central Macedonia** Mycenaean-style finds were first detected during the surveys of Struck, Träger, Schmidt, Wace and Thomson (for full references see Wace & Thomson 1909; Wace 1913/1914), while the military trenches of the 1916-18 campaign revealed the quantity of Mycenaean pottery to be found in the tell sites of the region (Rey 1917-19; Casson 1916). Southern Aegean contact is already attested sporadically with the import of pottery from the Early Bronze Age onwards (5.5.8). It is against this background of contact with the south of Greece that the first appearance of Mycenaean influences must be considered.

The region between the Strymon as far as the Verroia plain is characterised by high tell sites (3.7) which have almost without exception revealed some Mycenaean pottery. Large-scale excavation at four of these, Agios Mamas, Assiros, Kastanas and Toumba Thessalonikis, provide the majority of information and the basis for distinguishing between imports and local imitations. Tell sites of this type and date do not exist to the north of the Greek frontier (3.7), which follows the principal north-south watershed and marks the limit of the climatic zone influenced by the warmth of the Aegean. Nor has Mycenaean pottery (as opposed to Mycenaean weapons) been reliably identified north of this line, which thus forms a logical (and convenient) boundary to this study of the region. One of the gaps in our knowledge of the region is the lack of tomb or cemetery sites for any period between the Early Bronze Age and Early Iron Age.

Different kinds of contexts exist in the hills and mountain valleys of **western Macedonia** where single graves and small cemeteries reveal evidence of Mycenaean influence from the south, but no settlement has been excavated. It is debatable whether the Mycenaean finds from the Korçe (Koritsa) basin, accessible across low passes from the Haliakmon valley, should be treated with this area. For convenience they have been kept with other finds from Albania (5.4).

Eastern Macedonia and Thrace are not relevant to this study since the local culture of the area is barely known, and Mycenaean pottery has only been found at three sites between the Strymon river and the Dardanelles, Angista (which could perhaps be seen as the easternmost example of a Macedonian tell settlement - Koukouli-Chrysanthaki 1980), Phaia Petra (Balla 2004) and the Evros delta (Triandaphylou *pers. comm.*). The reason for this lack of contact is hard to explain unless it is that a relatively low level of social development did not arouse the interest of Mycenaean traders. In later periods there is an intimate relationship between the island of Thasos and the Macedonian coast, which served as its hinterland. In the Late Bronze Age, however, there is curiously little sign of Late Bronze Age settlement and the only Mycenaean is found in the earliest graves of the predominantly Iron Age cemetery of Kastri (Koukouli-Chrysanthaki 1993). In Thrace it is likely that the separate culture group which is represented in the Iron Age by megalithic burials and dolmens already existed even if it only becomes well defined in that period.

5.5.1 Religion

Religion and religious practice is, as already mentioned (2.5.1), one of the more difficult aspects of a society to recover from the archaeological record. Excavations in Macedonia have as yet uncovered no architectural structures that might be interpreted as religious in function, such as have been identified in the Mycenaean heartland. However, the Archaic sanctuary of **Poseidi** near Mende in Chalkidiki was already in use in the late Mycenaean period. Indeed it is so far one of only a handful of sanctuary sites in any part of Greece where continuity of use from the Late Bronze Age through to the Classical period can even be suggested (summarised in Coldstream 1977, chapter 13). It has a complete sequence of Mycenaean pottery from LH IIIC (and very probably from LH IIIB – Vokotopoulou *pers. comm.*) to Archaic in the vicinity of what has been described as an 'ash altar' by the excavator (Vokotopoulou 1997, 402). Ash altars are a feature of cult sites that continue into later periods, but its association with Mycenaean pottery here suggests its use even that early, and examples of ash altars are known in the Mycenaean heartland, such as the early cult centre at Epidaurus (Tomlinson 1983, 13).

Water erosion by the Limni Polyfitou created by damming the Haliakmon has brought to light an intriguing group of Mycenaean pottery beside the **Servia** bridge. While these can only be classed as chance finds in the absence of associated stratigraphy or architectural remains, their quality and character is notable. Amongst the handful of sherds recovered there are two separate rhyta, one decorated with a whorl shell; a stand with a narrow decorative band; a leg of what is probably a large, wheel-made bovine figure, such as those known from Phylakopi on Mylos (Renfrew 1982) and several fragments of a fine, large stemmed krater decorated with whorl shell and triglyph panel and with a monochrome interior (sketched in Fig 5.43).

These fragments, on the basis of their exceptional quality, particularly their accomplished decoration and glossy paint, are clearly imports to the area, most probably from the Peloponnese. They are all of LH IIIB1 date. The items, particularly the bovine figure, are such as one might expect to find in a religious context and suggest that there was a religious centre in the area. Mycenaean pottery of exceptional quality was also found in a separate location beside the new bridge during the 1973 Servia Neolithic excavations. These include fragments of an LH IIIA/B spouted krater and bowl (Fig 5.43) which are both unusual shapes for the Mycenaean periphery.

Their location near what was once a natural crossing place of the Haliakmon river on the main route from Thessaly into western Macedonia (which was still the main route joining north and south until the construction of the National Road in the 1960s) is of particular interest. The rhyta and wheel-made bovine may originally have been associated with some kind of 'wayside shrine' but the quality of the fragments from both locations makes the presence of these objects so deep in the interior of western Macedonia even more remarkable.

A head from an anthropomorphic figure from **Ano Komi** in the Aiani region found in conjunction with LH IIIB pottery (Karamitrou-Mentesidi 1999, 22) also suggests the possibility of a religious centre in this area. The head was originally from a figure that stood over 18cm high (Fig 5.44a). This kind of figure, larger than the typical Mycenaean Φ and Ψ figurines, is more usually associated with cult contexts in the Mycenaean heartland. This and the specialised pottery mentioned above (Servia) emphasise the importance of this region and may even be evidence for Mycenaean

presence. It should be noted that in no other region in this study has such a collection of ritually associated objects been identified

A number of animal figurines have now been found at in the **Aiani** region and are on display in the Aiani museum (Fig 3.44b, 7&8). One, undecorated, is a bird figurine with elongated body terminating in a 3-feathered tail. The slight bumps on the upper surface hint at wings. The base is, however, missing but may have been a 'stopper' like the bird from Perati (Iakovides 1969, Pl.109, 544, see also Pl.43, 1164, although this is a much plumper bird). A second figurine, judging by the shape, is almost certainly a similar bird, although there are traces of paint suggesting it was originally monochrome. While bird figurines are not common they are attested from Mycenae, Tiryns, Asine, Krisa, Volos, Perati and Aegina (French, E.B., 1971, 160). None of these, and few are illustrated, are direct parallels for the two found at Aiani but they share some similar features. It seems likely that the Aiani figurines, which have no antecedents in the region, are local versions of Mycenaean prototypes. Neither has been published with their context so certainty about date is virtually impossible (although LH IIIB has been suggested, Karamitrou-Mentesidi *pers. comm.*). A third figurine is of an even rarer type and is an almost intact wild boar with linear decoration, distinguished by its 'bristling crest' (French, E.B., 1971, 160). Two examples of this type were found at Mycenae (NM 1259), though only the heads are preserved. The comparative scarcity of such figurines in the Mycenaean heartland highlights the importance of the Aiani area, which clearly had strong links with the Mycenaean world.

Three further animal figurines have now been found at **Agios Mamas** (shown to me by R. Jung) to add to that published by Heurtley in 1939 (235, no.480), which is an animal figurine with high arched tail (Fig 5.44c). They include a wheel-made horn most likely to be from a bull figure and a bovine with 'saggy jowls'. Whether the function of these figures is strictly religious or not they are rare outside the Mycenaean heartland and should be significant.

There are more figurine fragments known from Macedonia than any of the other regions and these must surely reflect the adoption of Mycenaean cult practices if not beliefs. While this is more to be expected at coastal sites such as Agios Mamas, the presence of

such unusual figurines in the inland districts of Aiani and Kozani and the exceptional finds of two wheel-made bulls near Servia show that Mycenaean influence in this domain was unexpectedly far-reaching and may indicate a degree of acculturation. In addition the discovery of cult deposits at Poseidi showing continuity in use from the Bronze Age to the Hellenistic period invites a re-examination of this phenomenon in southern Greece.

5.5.2 Social Organisation

The deliberate planning of a settlement is evident at **Assiros** from LH IIIA2. Regular blocks of rooms and yards separated by three parallel streets (Wardle, K.A., 1982, 460-463) are suggestive of a central administration which is normally associated with Mycenaean palatial society. Unfortunately since excavations have continued no lower than these levels, it is impossible to determine whether this kind of plan was adopted before or after contact with the south had been established. Given the very distinctive character of social organisation in central Macedonia indicated by the tell sites, which were already established in the Middle Bronze Age, it would not be surprising if there was a considerable degree of local innovation without the stimulus of Mycenaean contact.

There is however, evidence of storage that can be interpreted as centralised provision during the Late Bronze Age in central Macedonia at Assiros and at Toumba Thessalonikis.

At **Assiros** there is evidence of substantial storage in Phase 9 and Phase 8 (Wardle, K.A., 1993, 130). Destruction by fire preserved not only the containers, but in many cases the contents of the vessels. Analysis of the carbonised seeds and associated weeds by Dr Glynis Jones has enabled a greater understanding of the cereals and other crops cultivated in the Late Bronze Age in the Langadas basin, and methods of cultivation and

crop processing. Three styles of storage containers were found in the storerooms, one typically Mycenaean – pithoi, and one characteristic of many Macedonian sites – clay-lined wicker baskets. In addition to these, basket lined pits were also in use. Large portions of two LH IIIA2 stemmed/deep bowls were also recovered from the Phase 9 storerooms, but what they once contained, if anything, has been obliterated by fire. The preservation of the details of these storerooms has shown that the quantity of storage far exceeded the needs of the inhabitants of the settlement at Assiros. Fig 5.45 illustrates the plan and reconstruction of the storerooms.

A similar situation occurs at **Toumba Thessalonikis**. In addition to the storerooms already reported, excavations in 1999 uncovered a large complex, building A, in which more than three large rooms were reserved exclusively for storage (Fig 5.46, highlighted in yellow). These have been assigned to Phase 4, and dated to LH IIIC. Two adjacent buildings also have substantial storage facilities. The excavator has suggested that building A fulfils the same role as the palace storerooms in Mycenaean citadels, though obviously the plan and materials used for construction cannot be compared[18]. A reconstruction of the storage rooms is illustrated in Fig 5.46b. It does not, however, illustrate the quantity of pithoi found, as only those that were found *in situ*, though fragmentary, have been recorded.

Are these actually central storage-redistribution centres as one has come to expect in the Mycenaean heartland? The nature of the storage is not as clearly defined as at Pylos for example where there are the wine magazines or at Mycenae where whole rooms were reserved for the storage of oil and wine (the House of the Oil Merchant; the House of the Wine Merchant/Cyclopean Terrace Building). The storage rooms at Assiros and Toumba Thessalonikis contained a wide variety of cereals and pulses. Pithoi could also have stored liquid goods, such as wine and oil, though there is no direct evidence for this at Assiros. It seems likely that in central Macedonia at least, since this is where the evidence is to date, the local communities were producing crops in excess of their needs and storing them in communal areas, presumably with the intention of mobilising them for the benefit of the community in times of shortage or for the 'financing' of communal

[18] This idea was presented by Prof. Stelios Andreou at *AEMΘ* 1999, held in Thessaloniki 17th-19th February 2000.

activities, such as the raising and repair of the terrace banks which surround the tells. While this is not indicative of the same degree of administration as occurs in the south of Greece it might at least suggest a society functioning in the same manner as the Mycenaean.

A change occurred at **Assiros** in LH III C (Phase 7) approximately at the same time as the palaces in the south were destroyed. The substantial organised storage facilities provided by the Phase 9 and 8 storerooms are replaced by more scattered storage on a scale that is much more appropriate to provision for individual families (Wardle, K.A., 1993, 131). Fig 5.47 illustrates clearly the different allocation of storage facilities between the two periods (highlighted in yellow). Perhaps the more complex economic systems for mobilising surpluses had broken down just as they had in southern Greece. It is noteworthy that the shift from the import of Mycenaean pottery to its local manufacture also took place at the same time (see below 5.5.8).

Linear B is generally regarded as the product of the administrative systems of the palatial centres in the Mycenaean heartland, except where it is used to identify contents or origin on transport stirrup jars which are found over a wide area. It is particularly interesting therefore that a clay fragment resembling a tablet has been found at **Assiros**. Unlike the more usual form of tablets from the south this is a *fired* clay strip with an inscribed sign (Fig 5.48c) similar to the Linear B 'ka'. While the symbol is clearly not copied directly from an original it may well have resulted from someone, who having seen Linear B tablets – whether in the hands of a visiting southerner at a port of trade or further afield – and on realising the significance of signs, attempted to imitate it on his return to his home community. This particular sign is also found on a fragment of a cup from Kastanas (Fig 5.48b), on a probable deep bowl from Scoglio del Tonno (Fig 5.48a) and on an amphora from Troy (Fig 48d). A crude version of this symbol may also be found on a fragment of 'Kindergarten' ware from Kilise Tepe in Anatolia (Fig 5.78f).

Another 'tablet like' clay fragment has been recovered from recent excavations at **Toumba Thessaloniki** with what appears to be squiggly writing on it – a poor attempt perhaps at imitating Linear B – once again the significance of the writing being understood while the mastery of the actual language and its signs is lacking.

From **Megali Rachi** near **Aiani** in western Macedonia comes a fragment of inscribed pithos, now in the Aiani museum, unfortunately without any context (Panayotou 1986, 97-101; Karamitrou-Mentesidi 1999, 1220). Two signs are preserved in their entirety and a third partially, inscribed onto the surface of the pot before firing. Though they are executed in a naïve fashion, they share many similarities with Linear A, B and Cypro-Minoan signs,. The fabric of the sherd suggests it is of local manufacture and thus the symbols are a rough approximation of items seen further afield such as potter's marks, ownership marks or indications of capacity. At the very least these finds of 'inscribed' items show that the regions were familiar with the trade patterns and 'trade marks' used in the heartland.

Clay stamps or seals have also been recovered from Agios Mamas and Toumba Thessalonikis though their exact usage cannot be interpreted, though it may have been associated with some form of administration. A similar clay stamp has also been recorded at Assiros.

5.5.3 Funerary customs

Recent excavations in the Archaic/Hellenistic cemetery at **Aiani** in 1999 have uncovered a small number of burials with Mycenaean-style pottery (Fig.5.44b). In addition many intact vessels, both Mycenaean and Matt-Painted, have been recovered, presumably from burials, but out of context thanks to Archaic disturbance. (Further work is still needed to determine the exact extent of this cemetery.) While the form of a cist burial differs little, whether in the Mycenaean heartland or in more peripheral regions and therefore tells us nothing about the extent of any influence, the manner of burial may reveal more. The deceased at this site were buried with few grave goods, usually alabastra of differing sizes and/or wavy band deep bowls, many of which are of excellent quality. Fig 5.49b shows the contents of one grave before removal. This assemblage, which contains two alabastra, a local bowl and a jug, shows clearly the mixing of two traditions – the Mycenaean and the local Matt-Painted. An examination of the fabric of both types, as well as the slightly crude manner of decoration, suggests a local manufacture, though no analysis has been done on the pottery.

One grave is of particular interest as the grave goods reflect not only the local tastes for handmade Matt-Painted pottery, but also the influence of wheel-made Mycenaean pottery. This grave contained one individual placed in a contracted position with two vessels positioned between the legs. One is a small angular alabastron (Fig 5.49c) with rock pattern (FM 32, 5) decoration on the shoulder in very fine matt paint, a local copy of a standard Mycenaean shape. The second is of particular importance for revealing the extent of integration in ceramic fashion in the area. At first sight, indeed as it was uncovered in the grave, it appears to be a typical small rounded alabastron. Its decoration is, however, Matt-Painted and while one of the handles is a typical alabastron handle – a horizontal handle on the shoulder, the other is vertical, more at home on a cup (Fig 5.49e). A further example of this Matt-Painted decoration on imported Mycenaean shapes is to be seen on a baggy alabastron found at **Ano Komi** (Fig 5.49f).

At **Siatista** in western Macedonia a cist grave was uncovered containing two skeletons and a number of Mycenaean grave goods. These included a small jug and wavy band deep bowl (Karamitrou-Mentesidi 1999, 121; Fig 5.54a), probably of local manufacture. Beads found in this grave, like those from the cemetery at Agios Dimitrios-Spathes (below), are close in style to varieties found in Mycenae and were most probably imported.

Other cist graves containing Mycenaean-style pottery and Mycenaean sword and weapon types have been found near **Grevena** and **Kozani**, while chance finds of other Mycenaean weapons presumably also come from similar cist graves. A small cemetery of cist graves has been found high in the foothills to the NW of Mt. Olympos at **Ag. Dimitriou**. The contents of these graves are of exceptional quality, and include seal stones and Mycenaean-style glass beads, which are imports, most probably from the Peloponnese (Poulaki-Pantermali 1987a & b; 1988). Unfortunately the excavators have not provided details of the relationship between Mycenaean and local pottery in these graves.

No graves or cemeteries have been discovered in the entire central Macedonian region.

5.5.4 Agriculture

The production of surplus has already been discussed in conjunction with the storage areas at Toumba Thessalonikis and Assiros, but a further point must be made concerning the material recovered from Assiros. Huge numbers of grape pips were also found in a fill in a Phase 8 yard. The large quantity makes it unlikely that they were wild, and suggests that they were the waste from grape pressing for vinification or possibly dried as sultanas. It is likely, since the area was well known for viticulture up until the middle of the 20th century, that the vines which produced these pips were cultivated in the vicinity of the Toumba in the Late Bronze Age. The quantity of pips in the fabric of the locally-made pottery suggests indeed that they were an abundant form of debris. Vine leaves were also exploited for sealing the mouths of jars (as they have been until almost the present day) and left traces on a number of clay stoppings, which had once sealed jar necks. One crop not used in southern Greece, which is present in Assiros (Halstead & Jones 1980), is millet, which can be used as an alternative to cereals, or, as in the medieval period in central Europe, to make beer. This appears to be an Asiatic crop which spread into the Balkans from the north east[19].

Mycenaean-style pithoi in a distinctive fabric for storage have been noted at a number of Late Bronze Age sites in Macedonia including **Assiros** (see above 5.5.2); **Toumba Thessalonikis, Kastanas, Agios Mamas, Vardino, Vardaroftsa** and **Aiani** and it is likely that they were used at every site in central Macedonia. Coarse ware jars up to 50cm in height are relatively common in Early Bronze Age contexts such as Agios Mamas (Heurtley 1939, 175:205) and Kastanas (Aslanis 1985, Taf. 15-24), but there is no clear evidence for the use of larger pithoi and their introduction may be an indication of Mycenaean influence. In Table 5.18, for consistency, only the seven excavated sites have been included but it seems likely that the significance of the adoption of the pithos for storage is much greater than this number indicates.

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[19] For a full discussion of the increasing importance of millet in the Ancient Near East and Greece see Nesbit & Summers 1988.

Excavation at the 'tell' site of Kamenska Čuka on the Bulgarian side of the Greek frontier in the Strymon valley, have shown that it is not a mound of the central Macedonian type but a small two storey 'fort' with thick stone walls. It contained typical Macedonian (rather than Bulgarian) Late Bronze Age pottery in addition to a number of pithoi set in the interior floors (Stephanovich & Bankoff 1998, 255-338). No Mycenaean finds have been reported. These discoveries provide intriguing new evidence for storage practices in the 'Macedonian' sphere of influence, but without knowing something of contemporary sites in the hinterland, they defy explanation.

5.5.5 Defensive provision

No cyclopean fortification walls have been identified in Macedonia, however the lack of suitable building stone in the areas where the toumbas are mostly located would preclude this type of construction. The presence of casemated fortification walls at **Assiros** and **Toumba Thessalonikis** (Andreou & Kotsakis 1997, 375), which are constructed in mudbrick with a rubble infill, are a logical solution (Fig 5.50a&b) to this lack of building materials. **Vardaroftsa,** where 'the remains of brick terraces were uncovered' (Heurtley 1939, 38; Fig.37 SVIII & IX) close to the edge of the mound evidently had similar walls although Heurtley did not recognize them as such. This style of fortification was used to protect the House of Tiles at Lerna (Caskey 1957), for example, in the Early Bronze Age, but it is not clear from where the influences for the Macedonian fortifications came. At Assiros they certainly existed in conjunction with the 'centralised' storage of phase 9, but as already noted (5.5.2), it has not been possible to identify the point in time at which they were introduced. Another possible source of inspiration is the Hittite empire (5.6.5) but no other direct Hittite connections have been detected.

Fragments of wild boar's tusks have been uncovered from Grave 7 at the necropolis of Klučka, near the racecourse in Skopje. These can be reconstructed to form a helmet (Fig 5.51a) most probably of the type of boar's tusk helmet known from Dendra and Spata (Fig 5.51b) though no other finds of Mycenaean-style or origin have as yet been found in this area (Mitrevski 1997, 71 fig.12; Plate VII). Presumably this helmet, already a

prestige item in the Mycenaean world, had special significance to its 'Balkan' owner, in the same way as the Mycenaean swords found in the region to the north of Greece.

5.5.6 Architecture

It is impossible to assess how much influence, if any, Mycenaean contact had on the architectural style in Macedonia. None of the excavations undertaken in the area have reached the levels beneath LH IIIA2 to reveal the character of the architecture in the period prior to extensive Mycenaean influence. The settlement at Assiros, with regular blocks on either side of streets is clearly well planned, but whether this was a purely local phenomenon or the result of some external influence cannot be determined. The use of timber framing with an infill of stone or mud brick is a building technique employed throughout the Aegean area.

5.5.7 Metalworking

The mobility and desirability of such items as swords, daggers and spears has already been addressed in Chapter 4 and illustrated by the finds in Epirus and Albania (5.4.7). There are, however, a number of objects that illustrate a degree of acculturation and suggest local manufacture.

In western Macedonia horned swords (Type C) have been found at **Grevena** and **'Mt. Olympus'** (Sandars 1963; Driessen & Macdonald 1984, 69-70, fig. 2). A further example has recently been found in a grave in the prehistoric cemetery in **Aiani**. This as yet unpublished sword is of extremely fine quality and was, unusually, found with its marble pommel *in situ* (although the handle has disintegrated) and sheathed in its scabbard. Fragments of similar scabbards terminating in a globe had been found at a number of sites in the region around Aiani, but not identified until this discovery (Karamitrou-Mentesidi *pers. comm.*). At the same period that local production of cruciform swords (Class D) was beginning in Albania (5.4.7) similar versions, though shorter, were being produced in Macedonia. Examples of this type come from **Grevena**

(Casson, 1923, 172, fig. 2) and **Agios Dimitrios** (Poulaki-Pandermali 1988, 136, no. 83). A fine example of this type of sword with spiral decoration has recently been found at **Aiani**, though the sharp taper towards the tip is an unusual feature which may indicate local production.

A marble sword pommel from **Assiros** (Fig 5.52a) found in the construction level of the first LH IIIC buildings at Assiros (Phase 7) probably came from a Class D or C sword. It has a mushroom shaped head 5.4cm in diameter. An unfinished rivet hole for attachment to the blade is preserved in the broken section of the socket, which may have been broken during manufacture (Wardle & Wardle 2001). Although it was associated with a context dating to the early 12th century it is likely that it had originally been made for the kind of prestige item which was fashionable in earlier periods. If the damage to it occurred during manufacture, and this cannot be confirmed, then its presence implies the manufacture of metal weapons and their fittings at Assiros. An ivory sword pommel from the LH III B-C **Agios Demetrios-Spathes** cemetery (Poulaki-Pandermali 1988, 137, no. 85) is of a similar type, though larger in size. Parallels both for shape and size have been found at Mycenae (Fig 5.52b & c).

The long Aegean split-socketed spearhead, which has already been noted in Epirus, is also present in Macedonia at **Grevena** (Rhomiopoulou 1969, 14-15, fig. 4). Three further examples of this type are in Boston with a provenance listed simply as Macedonia (Comstock & Vermeule 1971, 390-391). At **Kastanas** there is a stone mould for a spearhead of this type from Schicht 16 (Hochstetter 1987, 20-21,pl.5:3, 28:7) suggesting that this type of spearhead was copied locally. Finds recently put on exhibition in the new museum at Aiani (2003) show that the short cast-socketed spearhead with faceting was just as popular as in Epirus and Albania and, as in that region, indicates traditions of metalwork and weaponry independent of Mycenaean influence.

Evidence to support the existence of local metal working can also be found in the presence of a number of moulds, for a variety of objects, at **Assiros** (Fig 5.53d-g). They are all found in contexts after 1200BC and after the collapse of the central administration in the Mycenaean heartland. Moulds are also known from **Toumba**

Thessalonikis (Andreou & Kotsakis 1996, 376, pl. 2) and **Kastanas** (Hochstetter 1987, 21-41) in addition to that for the spearhead already mentioned.

Knives and razors of Aegean-style have been found at **Leivithra** in graves along with local forms (Poulaki-Pandermali 1988b, 61-62). Apart from the finds of moulds, the record of metal objects and metal-working for central or eastern Macedonia is limited in contrast to Epirus and Albania in consequence of the failure to discover tombs in this region.

The popularity and value of bronze weapons in the wider Balkan region can be seen from the beginning of the Mycenaean period in the presence of a horned sword from Karaglari in Bulgaria, which is well beyond the direct Mycenaean sphere of influence. Also at this time Early Mycenaean swords (LHI/II) and their derivatives were reaching Bulgaria (Hänsel 1973, fig.1) and Romania (Sandars 1961, Bader 1991, 17-36), either via the Black Sea coast or through Macedonia, via areas such as Rhodopi and also Yugoslavia (Harding 1995, 20-23).

Macedonian gold, presumably alluvial, had been exploited since the Late Neolithic period (3.1.3) and in the Late Bronze Age this may have been one of the reasons that Mycenaeans were attracted to this area. The three items of jewellery in Kastanas Schicht 16 (the Middle Bronze/Late Bronze transition) presumably come from the same source. One of these, at least, has been likened to examples from the Shaft Graves at Mycenae (Hochstetter 1987, 15-16; pl. 1, no. 6; pl. 25, no. 9). Extensive exploitation of the gold in Macedonia is demonstrably occurring in the 6th century BC as shown by the rich Archaic cemetery of Sindos (Sindos 1985). The historical record too reflects the systematic exploitation of mines. Thucydides retired to Skapti Hyli where he had mining rights after his disastrous campaign to defend Amphipolis in 424 BC (IV, 105.1).

The wealth of gold in the Shaft Graves at Mycenae (MH-LH II) corresponds with the first period of regular contact with Macedonia. Middle Helladic wares have been found at Agios Mamas and early Mycenaean - LH II at Torone (Cambitoglou & Papadopoulos 1993, 293-296) and LH I/II at Kalamaria (French, D.H., 1967, 59). While it cannot be proved in any way conclusively, at least until there is some reliable way of analysing

gold for its provenance, the role of gold in this interaction between Macedonia and the Mycenaean heartland may well have been significant and certainly would provide the impetus for trade northwards as is shown by the spread of early Mycenaean swords.

5.5.8 Pottery manufacture

Mycenaean was by no means the first pottery to be imported from southern Greece. There are examples of Early Helladic wares from Servia, such as the EH II yellow mottled ware sauceboat fragments and the EH III dark-faced smear wares (Ridley & Wardle, K.A., 1979, 220). Similar EH III material is also known from the site of Kritsana (Heurtley 1939, fig. 43). This influence from the south continues into the Middle Helladic, particularly in coastal areas, with Grey Minyan ware represented at a number of sites including Agios Mamas (Heurtley 1939, 208-211, and recent excavations by Hänsel) and Torone (Cambitoglou & Papadopoulos 1988, 215). Further inland, Middle Helladic wares are much harder to identify, with a possible exception at Assiros where a single fragment of a ribbed stem may be seen as imitating Grey Minyan wares (Wardle, K.A., 1993, 121). Mycenaean pottery of LH I date was already present at Torone (Papadopoulos 1993, 296).

There is a change in provenance of Mycenaean pottery during the course of Late Helladic III. At Assiros, for example, the majority of the LH IIIA2 and LH IIIB pottery was imported (both from the heartland and regional production centres), while by LH IIIC the balance changes and the majority of the pottery appears to have been produced locally, or at least within Macedonia. A limited number of samples from the site seem to confirm this view (Jones 1986, 110; Buxeda i Garrigos 2003). Provenance analysis on material from Toumba Thessalonikis and Assiros has shown that, for the majority of the pottery, raw materials that were readily available in the local area were used to produce them (Kiriatzi, Phd thesis in prep, Andreou *pers. comm.*). Petrographic analysis at Toumba Thessalonikis has shown that for local style pottery the potters used local non-calcareous clays (Kiriatzi, Andreou *et al.* 1997, 3), with a division of quality between wares, as has been seen at Assiros (Wardle, K.A., 1993, 123) and Kastanas (Hochstetter 1984, 29-37). At Kastanas the picture is somewhat different. No Mycenaean-style pottery was produced from clays local to the site but the majority was transported from

production centres elsewhere in Macedonia and maybe even from outside this region from as early as LH IIIA2 (Momsen, Kreuser, Weber & Podzuweit 1989, 515-523). At Toumba Thessalonikis petrographic analysis of LH IIIC pottery has suggested that its mineralogy is most compatible with the geology of the east coast of the Thermaic gulf, and similarities have been noted between local handmade burnished pottery, which is thought to have been produced from local clays, and some of the Mycenaean-style pottery.

The majority of the Mycenaean pottery recovered from excavations at Agios Mamas is decorated with what appears to be a very metallic paint using local clays. This has led to the suggestion that there was a workshop local to Agios Mamas. Clay analysis conducted on material from Kastanas has shown that both local and Mycenaean pottery used the same clay.

The Mycenaean-style pottery found and made in Macedonia is almost exclusively wheel-made, with a few exceptions, such as the handmade imitations found at Assiros. After the throwing of the pot on the wheel the surface was usually wiped and an iron oxide-rich paint was then used for its decoration. Thin section analysis[20] has enabled us to conclude that the Mycenaean-style pottery made locally was indeed fired at higher temperatures than the handmade ware but not at temperatures used for metropolitan Mycenaean pottery (Buxeda i Garrigos 2003). It also appears that the firing conditions were well controlled, 'resulting in a homogenous atmosphere, either fully oxidising or alternating in a cycle of oxidation-reduction-oxidation' (Kyriatzi, Andreou *et al.* 1997, 5). These conditions may only be obtained by the separation of the pottery to be fired from the fuel source and can be achieved by the use of an updraft kiln such as has been recently found at Velestino (Batziou-Efstathiou 1999, 215-224) and at Dimini (Adrimi-Sismani 1999, 131-142). At Assiros these studies have shown the use of a 'fast-firing' kiln technology which results in a different mineral structure, visible under the microscope, and a grey core to the sherds with a buff or orange surface. This represents an adaptation of the standard Mycenaean pyro-technology used at Toumba, Kastanas and Agios Mamas perhaps resulting from a combination of traditional Macedonian and

[20] During thin section analysis the state of optical activity of the clay matrix gives a rough estimation of firing temperatures. Whitbread 1995, 394.

imported southern Greek technologies (the grey core is typical of the local brown burnished wares).

This combination of local and imported features in the Mycenaean pottery from the region points to an interesting degree of interaction, not only between the Mycenaean heartland but also between local workshops. Numerical analysis of the material shows that at least 20% of the pottery recovered at Agios Mamas is of Mycenaean origin or influence, a proportion that lessens with the distance from the coast, as one might expect. Thus at Kozani, for instance, this proportion has dropped to merely 5-10% of the whole material (Karamitrou-Mentesidi *pers. comm.*). One exception to this rule is the group of Mycenaean sites in the area of Aiani. Some of these appear to be solely Mycenaean in character and others demonstrate a much more effective mixing of two cultures, with the proportions more in the region of 50-50, though this may be a direct result of the nature of these sites which are largely cemeteries. On the whole the representation of Mycenaean wheel-made pottery at the tell settlements is of the order of 5-10%.

Even at Agios Mamas definite imports are few and far between. One LH IIIB kylix with a whorl shell might well have come from the Argolid, though it might not be necessary to look so far afield for the good quality Zygouries-style kylikes found there, since several have been found at Dimini (Jung *pers. comm.)*. LH IIIA2 kylikes (FS 257), with monochrome interiors, have also been identified at Agios Mamas. Interestingly enough these seem to be a feature of later sanctuary sites such as Thermon (Wardle, K.A. *pers. comm.*), Dodona, Dimini and possibly also Delphi, although there is no evidence from Agios Mamas to suggest its identification as a sanctuary.

Deep bowls were the most popular shape adopted in Macedonia at settlement sites as can be shown for Assiros and Kastanas, where study is complete. A particular feature of these deep bowls, the majority of which were probably made locally, is the preference for a single wavy band on the exterior and one or two low bands on the interior, rather than the more typical rim band expected on a vessel from the Mycenaean heartland. These would appear to be a local Macedonian type and are also present in some quantities at Agios Mamas (Jung *pers. comm.*) and Toumba Thessaloniki, where study of the Mycenaean material is still at a preliminary stage. A selection of these locally-

made wavy band deep bowls are illustrated in Fig 5.54. This particular style of decoration is popular in LH IIIC in the Mycenaean heartland and the majority of the local versions date to this period. At Kastanas however, the longevity of this shape is demonstrated by the large numbers of this type of deep bowl in levels dating to LH IIIC late and into the Protogeometric period and may well be true for other sites where there is continuity from the Bronze Age into the early Iron Age. Decoration on deep bowls was not restricted to wavy bands, however, and other popular motifs include the tassel and 'moustache', which develop from simple to multiple versions during LH IIIC late. Examples of these are known from Kastanas, Toumba Thessalonikis and Assiros (Fig 5.55). Another typical Macedonian product in Mycenaean ware is the semi-globular cup with linear or linear/wavy band decoration (Fig 5.59). Sherds from these two shapes are often only distinguishable on the basis of the rim diameter. In general deep bowls have a diameter of greater than 12cm and cups of less than 12cm. Certainty is of course only possible where handles or handle roots are preserved.

A peculiarity of Macedonian Mycenaean is the stemmed piriform jar (Fig 5.57) found at a number of sites across the region - **Assiros, Agios Mamas, Toumba Thessalonikis, Saratse, Kastanas, Molyvopyrgos, Vardaroftsa** and **Kastri** on Thasos. The stemmed piriform jars from Assiros (Fig 5.57e) are certainly not imported from the Mycenaean heartland but the quality of the fabric and paint suggests they are imported from a provincial centre. A number of basins and lekanes have been identified as locally manufactured, and a particular feature seems to be slashes painted on the rim (Fig 5.58). Amongst vessels of this type can be included a basin from Assiros, which unusually, is painted with stripes inside.

Basket handles on bowls, painted either with a solid band or dots (Fig 5.56g), first noticed by Heurtley in 1939, are thought to have found inspiration in the local wishbone-handled bowls, which are a common feature of most Bronze Age sites. These have been found at Kastanas and Agios Mamas (named 'Olynthos' bowls by Jung) in some quantity, though not at Toumba Thessalonikis or Assiros, suggesting perhaps a local workshop. Basket-handled bowls are, however, found in Assiros but made in local fabrics. This might suggest a further degree of fusion where a local handle style has been added to a Mycenaean shape. Another feature of the Mycenaean pottery from the area surrounding the Thermaic gulf that most probably had its inspiration in the local

wishbone-handle bowls, is the rim section on many of the bowls. A further adaptation of the Mycenaean deep bowl can be seen at Agios Mamas where fragments of a bowl with a bull's head protome on the rim have been found (Fig 5.56h). At **Aiani** and **Ano Komi** in western Macedonia alabastra have been decorated using the Matt Painted technique (5.5.3).

Some of the Macedonian shapes familiar to the local potters were taken and incorporated into the locally-made Mycenaean repertoire. One particular shape that is present in the local repertoire is the large 'salt and pepper' pot (double vessel). At Assiros this shape has also been made using Mycenaean technology, producing a Mycenaean pot in fabric and appearance but not in shape (Fig 5.56d). The common cut-away-neck jug, as found at all sites in the region, is another local Macedonian shape that has been incorporated into the local Mycenaean pottery repertoire (Fig 5.56). One example in particular, from Assiros, is worthy of mention as it was slightly damaged while in its leather-hard stage and the damage to the rim painted over. This is indicative perhaps of the potter's/painter's unfamiliarity with the Mycenaean techniques and also suggests production in limited quantities. Fragments from cut-away-neck jugs are also found at Toumba Thessalonikis (Fig 5.56b&c) and a complete version, of somewhat better quality, was found in a cist grave at the cemetery site of **Agios Dimitrios – Spathes** (Fig 5.56e).

Although no production of Mycenaean coarse wares is reported in Macedonia, pithoi in a good quality fabric reflect the storage methods of Mycenaean Greece (5.5.4) and have been found at every excavated Late Bronze Age settlement site in central Macedonia. It is likely that they became part of the pottery repertoire at every site in this region, an indication of the extent to which the Mycenaean practices were adopted as a result of social, economic and agricultural changes.

(see also sections 5.5.1 and 5.5.3 for finds at Servia and Aiani respectively.)

There appears to be a delay in the arrival in Macedonia of some main features of the Mycenaean repertoire. For example, the monochrome deep bowls with reserved bands, an early LH IIIC feature in the Mycenaean heartland, do not appear, with the exception

of one example, until LH IIIC advanced at Kastanas in Schicht 12, a level which includes Protogeometric pottery.

In contrast to some of the regions discussed already (Sardinia and Epirus/Albania, where the effects of Mycenaean contact seem to disappear almost completely at the end of the Bronze Age, in Macedonia the effect of Mycenaean contact was probably much longer-lived, another indication of the depth of influence in this region. It is clear from Kastanas and Toumba Thessalonikis that linear decorated wheel-made pottery using Mycenaean technology continued to be made well after the end of the Bronze Age and it is impossible in many cases to decide what should be classified as Mycenaean and what as Protogeometric, as has already been noted in the context of chronological problems in the area of Macedonia (3.2.2). In addition to this, a series of spouted kraters recovered from Protogeometric graves at Kouko in Sithonia may also be examples of an enduring Mycenaean tradition (Carington Smith *pers. comm.*; cf. Carington Smith & Vokotopoulou 1990; 1992). These vessels are in shape almost identical to those of Mycenaean origin, though the pedestal feet are typologically closer to Protogeometric examples. Unfortunately, while their fabric is different to Protogeometric vessels recovered from other graves in the cemetery at Kouko, their surface is so abraded and burnt that the decoration has been obliterated though in some case it is possible to make out traces of linear decoration. Similar spouted krater fragments (Fig 5.60) have been recovered from Assiros, Kastanas (Hänsel 1979, 190 Abb 15) and Agios Mamas (Level 1, Jung *pers. comm.*) in levels that cover the period from LH IIIC late to early Protogeometric. Another indication of innovations that persisted can be seen in the use of pithoi for storage throughout the Iron Age and indeed until the past century. It is also evident that southern Greek influences continued to arrive in Macedonia in the form of imports and imitations of Protogeometric pottery (Catling 1998).

Pottery fashions in Macedonia

It has been possible to examine the data from three sites in Macedonia to attempt to identify fashions in Mycenaean pottery shapes during the different phases of Mycenaean contact. The tables which follow are the results of preliminary study of the material and I am extremely grateful to the excavators for supplying their excavation

catalogues and for their permission to use unpublished data. The three sites have been chosen, not only because the quantity of Mycenaean pottery recovered is substantial, but also because they form an interesting case study on the basis of their location.

Toumba Thessaloniki lies on the shores of the Thermaic gulf and has already been identified as a logical location for a port of trade, controlling trade routes further inland. The settlement here, on the basis of excavation, appears to have been a flourishing town. Kastanas has long been suggested as a river trading port, located approximately a day's sail inland along the Axios river, and certainly the settlement was fairly substantial. Assiros, the final settlement to be chosen, is located directly on a main trade route heading north and is likely to have functioned as a stopping place for traders along this route as well as some kind of 'central place' as suggested by the concentration of storage.

Assiros

The Mycenaean pottery from Assiros presented in the Table below has been classified according to shape and period. In the case of the three categories marked with an asterisk it has not been possible to identify the nature of the vessels, other than whether they were open or closed, since the fragments are too small. They have, however, been included in the Table to show as complete a picture as possible of the Mycenaean from the site, given that only a preliminary study has been undertaken and only 22 fragments have been published. This chart also makes no attempt to distinguish between pottery that is local, provincial or imported. This is presented later to illustrate the increase in local production from LH IIIB at the site. The Table also includes a number of shapes that are typically local, but manufactured in Mycenaean-style, such as the trefoil jug dating to LH IIIC middle and cut-away-neck jugs, both of which have been discussed in some detail earlier in this section.

TABLE 5.17 MYCENAEAN POTTERY FASHIONS AT ASSIROS BY SHAPE AND PERIOD

	LH IIIA2/B	LH IIIB	LH IIIC early	LH IIIC middle	LH IIIC late	Total
Alabastra		8	4	6	3	**21**
Alabastra, S-S		2	3	2		**7**
Amphoriskoi			4		1	**5**
Basins			2	6	3	**11**
Bowl		4	9	16	5	**34**
Carinated Bowls			2			**2**
Collar-neck Jars			1			**1**
Conical Cups				1		**1**
Cup/Bowl			3	9		**12**
Cups		22	40	17	14	**93**
Cut-away-neck Jug		2	5	1		**8**
Deep Bowls	5	45	127	27	36	**240**
Double Vessels			1			**1**
Jars/Amphorae/Hydria		11	36	11	9	**67**
Jugs		9	24	11	12	**56**
Kraters		10	46	24	22	**102**
Kylikes	2	7	11	5	4	**29**
Lekane			6	5		**11**
Mug			1			**1**
Piriform Jars	2	12	17	5	5	**41**
PJ/Alab			3	1	1	**5**
Shallow Angular Bowls			1	1	1	**3**
Stemmed Bowls	2	2	3	1		**8**
Stirrup Jars	2		2	3	4	**11**
Trefoil Jug				1		**1**
Closed vessels*		34	127	104	65	**330**
Misc*		33	60	53	50	**196**
Open vessels*		26	57	15	27	**125**
Total	**13**	**227**	**595**	**325**	**262**	**1422**

A number of conclusions can be drawn from this table. It is clear that there is a proliferation of pottery in LH IIIC early with over 40% of the fragments being dated to this phase. The proportion of Mycenaean pottery in comparison to local handmade wares also increases at this time. The material dating to LH IIIA2/B, in constrast, is extremely scarce at the site. This is either an indication of the date of the introduction of Mycenaean pottery at the site or it may have been the result of the relative lack of excavation on the site beneath the level of the phase 9 storerooms.

The deep bowl is, as has been seen at the other sites in Macedonia, the most common vessel type, representing over 15% of the total assemblage. They are particularly common in LH IIIC early from which period there are 127 examples. Most of these are

decorated with wavy bands, which has already been identified as a popular motif in Macedonia (5.5.8). Kraters are the second most numerous vessel, with 102 examples in total, followed closely by cups of assorted shapes (Fig 5.59). This number of kraters is high in comparison with the Mycenaean heartland (Wardle, K.A., 1973) and may suggest a special function in Macedonian society. There appears to be a clear preference for these vessels, which have been identified as components of drinking sets, above others which could be used for storage, such as alabastra and stirrup jars (Wardle, Wardle & Wardle 2003, 631-643). In general, despite the scarcity of certain vessels, such as stirrup jars, collar-neck jars and amphoriskoi, the repertoire of Mycenaean shapes is well represented. A few absences include pilgrim flasks and feeding bottles, for example.

Toumba Thessalonikis

The Mycenaean pottery that is represented in the Table below is the result of classifying and dating only the material which can be restored into complete pots or was deemed worthy of mention in future publication by the excavators. It does not, unlike at Assiros and Kastanas, include those fragments which were too small to identify as these were not kept from the excavation beyond a preliminary count. As at Assiros it includes local, provincial and imported Mycenaean.

TABLE 5.18 MYCENAEAN POTTERY FASHIONS AT TOUMBA THESSALONIKIS BY SHAPE AND PERIOD

	IIIA2	IIIA/B	IIIB	IIIB/C	III C	III C late	Sub Myc	?	Total
Alabastra	1		1		1				3
Alabastra, S-S								2	2
Amphoriskos					1				1
Basin								4	4
BHA					1				1
CANJ								2	2
Cups					12			4	16
Deep Bowls	1				21	10	1	9	42
Jar/Amphorae					1			11	12
Jugs	1			1				10	12
Krater	1				2			4	7
Krater with lug								1	1
Krater, small								5	5
Krater, spouted					1				1
Krater/Basin								1	1
Krater, stemmed	1							1	2
Kylikes	2				3			1	6
Lekane								2	2
Mug					1				1
Piriform Jar		3						1	4
PJ, stemmed				2					2
SAB								3	3
Shallow Bowl					1				1
Stirrup Jars								2	2
Total	**7**	**3**	**1**	**3**	**45**	**10**	**1**	**73**	**143**

BHA= Belly Handled Amphora; CANJ= Cut-away-neck jug; PJ= Piriform Jar; SAB= Shallow angular bowl

The majority of the datable Mycenaean pottery from Toumba Thessalonikis has been assigned to LH IIIC. (It should, however, be remembered that excavation below levels of this date has not yet been extensive). As at Assiros, the most popular shape by far appears to be the deep bowl, the majority of which are decorated with wavy bands or 'moustaches' (Fig 5.54; 5.55). The next most popular item is the krater, of which there are 17, if all variations of the type are included. These, in addition to the cups, of which there are 16 identified examples, form a set of pottery which may have been used as a drinking set. Certainly the majority of vessels could have been used to hold or drink liquids of some sort and they complement local vessel shapes. Andreou has drawn attention (2004) to the fact that drinking sets already existed in the local Matt Painted pottery but were largely supplanted by Mycenaean types in LH IIIB and completely by LH IIIC when these practices seem to have been reinforced and perhaps adopted over a much wider area. Petrographic analysis of the Mycenaean pottery indicates the existence of a surprising number of different pottery workshops in the region. Andreou uses this evidence to support the argument for Mycenaean pottery being manufactured

in small quantities as a high status product since 'cost–effective' production would have been concentrated at a small number of workshops with a large output as appears to have been the case in the Protogeometric period. In any case this shows that Mycenaean-style products were widely available through the region even if in small quantity. As at Assiros and Kastanas stirrup jars and large piriform jars are not frequent, suggesting perhaps that they had no need or desire to import the contents of these vessels and therefore rarely the vessels themselves.

Kastanas

As with the other sites in this section the following table (Table 5.19) of Mycenaean pottery is the result of classifying and dating the material from excavation. I do not agree with Reinhard Jung over the quantity of deep bowls that can be identified, since he has a category of small deep bowls, which would fit better with identification as cups. In order to allow comparison, I have applied different criteria from Reinhard Jung to differentiate between deep bowls and cups - the rim diameters are an indicator of a vessel's shape, so that erring on the side of caution anything with a diameter smaller than 11cm has been classified as a cup.[21] Since a large proportion of the material is made locally or at provincial centres there is a further complication over the dating of some of the vessels. Many of the deep bowls he lists (Jung 2002) come from levels which also contain Protogeometric[22] and many of them on closer examination are in my opinion very late examples, probably early Protogeometric in date and for this reason they have not been included in this table. It has also been possible to identify a number of fragments of unpainted Mycenaean, a category that has been missing from many of the other sites examined in this study. The Mycenaean pottery includes imported and provincial types.

[21] The most useful division on size appears to be at 12cm. See above.
[22] Jung's study does not include Protogeometric or other Iron Age wheel-made wares from levels 10 and above.

TABLE 5.19 MYCENAEAN POTTERY FASHIONS AT KASTANAS BY PERIOD

	III A2	111 A2/B	III B	III C early	III C middle	III C late	?	Total
Alabastra, S-S		1	3	4	5			13
Amphoriskos				1				1
Belly Handled Amphorae			2	3	1	43		49
Bowl					5	6		11
Bowl/Basin			1	4	12	4	2	23
CANJ				1				1
Carinated Bowls				1	2	2		5
Carinated Cups				2				2
Cup, 1-handled				1				1
Cups		1	1	2	5	9		18
Deep Bowls	1	3	6	21	61	165	1	258
Dipper						1		1
Goblet	1							1
Jar/Amphorae/Hydria	1	2		6	3	29		41
Jugs				1		2		3
Kraters			2	1	13	33		59
Kylikes	1	1	5	5	12	2		26
Lekanes				1				1
Mug		2			3			5
SAB				5	4	41		50
Spouted Kraters						1		1
Stemmed Bowl	1	3	2	25	19	8	2	60
Stemmed Piriform Jars			2	2				4
Stirrup Jars	2		1	1	1	1		6
Total	**7**	**13**	**25**	**87**	**146**	**347**	**5**	**640**

Unpainted	III A2	III B	IIIC early	IIIC middle	III C late	Total
Carinated Cup			1	1	1	3
Cooking pots	2			1	2	5
Deep Bowl				1	3	4
Kylikes			2			2
SAB				1	2	3
Total	**2**		**3**	**4**	**8**	**17**

SAB=Shallow angular bowl; CANJ= Cut-away-neck jug

The majority of the material from Kastanas can be dated to LH IIIC late. As with other sites in Macedonia it is immediately apparent that deep bowls are an extremely popular shape and here too the decoration consists of wavy bands, 'moustaches' and tassels. Stemmed bowls and shallow angular bowls are also common. The few examples of stirrup jars once again highlight the general lack of these objects in Macedonia. Large piriform jars are notable by their absence, and it must be supposed that the products they normally contained were not needed or desired in Macedonia. Belly-handled amphorae are surprisingly common in LH IIIC early. The shapes represented in the

unpainted wares, though few, are typical of the Mycenaean heartland. It is of particular interest in the context of local imitation of Mycenaean pottery that there are no examples, either imported or locally produced, of the Mycenaean tripod cooking pot. The Macedonian preference was clearly for the traditional cooking stand (Fig 3.24) and it may well be that tradition dominated in many ways other than cookery.

5.5.9 Assessment of Level of Acculturation

As discussed in Chapter 3.7, the Late Bronze Age society of central Macedonia seems to be exceptionally stable and many characteristics were already present at the start of the period. In several of the categories of evidence it is likely that this area had already developed a high degree of social complexity prior to the initiation of Mycenaean contact. In western Macedonia our picture of the material culture and the society it reflects is far more fragmentary. The adoption of Mycenaean pottery throughout central Macedonia for drinking sets from the 13th century onwards is one of the clearest indications of social adaptation while the adoption of pithoi for storage and the development of central storage facilities both seem to occur after Mycenaean contact.

Table 5.20 shows the summary of numerical data for each of the eight domains of social activity in Macedonia based on the discussion in the previous sections and also on the tabulation of Mycenaean-style pottery in Table 4.5.

Table 5.21 presents the same information in a visual form allowing a more general impression of the level of acculturation for each of the eight domains of social activity.

TABLE 5.20 ACCULTURATION IN DOMAINS OF SOCIAL ACTIVITY IN MACEDONIA

Domains of social activity		Number of sites in Macedonia with features	Total number of sites in Macedonia *	% representation	weighting factor category	weighting factor sub-category	weighted value
RELIGION			120				**100**
Belief systems		**0**	120	0	10	4	0
Shrines		**2**	120	2	10	3	50
Cult objects		**3**	120	3	10	2	50
SOCIAL ORGANISATION			120				**87**
Urbanisation		**1**	120	1	8	4	27
central Storage		**3**	120	3	8	3	60
FUNERARY CUSTOM			120				**187**
Mortuary systems		**0**	120	0	8	4	0
Grave types		**0**	120	0	8	3	0
Grave goods (Mycenacan type)		**14**	120	12	8	2	187
AGRICULTURE			120				**60**
Crops		**0**	120	0	6	4	0
Methods of cultivation		**0**	120	0	6	4	0
Storage methods		**6**	120	5	6	2	60
DEFENSIVE PROVISION			120				**13**
Cyclopean circuit walls		**0**	120	0	4	4	0
Fortifications		**2**	120	2	4	2	13
ARCHITECTURE			120				**0**

(cabin structure) as there appears to be insufficient room for it if the position of the mast in the centre of the ship is correct.[2] There are a number of other reasons for its removal but most significant is the presence of a small red feature just behind the back steering oar. On the other ships the ikria are placed on well-defined yellow (presumably representing gold) structures. The feature on this boat is more in keeping with the 'covered seat' in the small boats (Fig 5.4). There also appears to be no ram on this boat, which supports its identification as a cargo ship. The ship appears to have a central hold in which mariners are sitting. This is not unlike the model of a 6th dynasty Egyptian cargo ship (Morgan 1988, Fig. 162) and wall paintings from the 18th dynasty Tombs at Huy (Davies & Gardner 1926, 32-3) and the 15th-14th century Tombs of Kenamun, which show Syrian merchant ships unloading their cargo at an Egyptian harbour (Fig.4.2).

The boat also shares many features with a ship engraved on a seal from a tholos at Platanos that dates to around MM II (Basch 1987, 96B 1a&b). Its square sail is not overly large and this seal shows one of the first representations of a boom[3]. The rigging of the Santorini ship, while being exceptionally comprehensible in terms of its use, including the depiction of pulleys (Fig 4.1), has also led some experts to state that Bronze Age ships were unable to sail into the wind (Morgan 1988, 124-126; see also Tilley 1994; Roberts 1995 on the relative positioning of the mast for windward sailing). Similar pulleys for raising and lowering the sail on the mast are shown in a small fragment of wall painting from Pylos (Fig 4.3) and confirm the reconstruction of the upper part of the mast on the cargo ship. Steering appears to be controlled by four oversized 'quarter' rudders, two on each side, while the majority of the boats depicted in the fresco have only one on the starboard side.

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[2] Since the fragments do not preserve the true length of this ship it is possible, though not as likely, that the mast may have been off centre as on other ships in the procession. This would leave enough room for an ikria behind the two men.

[3] Although the sail was certainly well established in use by this period (McGrail 1991, 87).

Domains of social activity		Number of sites in Macedonia with features	Total number of sites in Macedonia *	% representation	weighting factor category	weighting factor sub-category	weighted value
[Religious]		**0**	120	0	4	4	0
Public		**0**	120	0	4	3	0
Domestic		**0**	120	0	4	2	0
METAL WORKING (MYC - CYPRIOT)			120				**95**
Workshops		**1**	120	1	3	4	10
Moulds		**3**	120	3	3	4	30
Finished product		**7**	120	6	3	2	60
Ingots		**1**	120	1	3	1	3
POTTERY			120				**277**
Kilns/workshops		**0**	120	0	2	4	0
[Dolii/pithoi/storage vessels]		**0**	120	0	2	3	0
Locally-made Mycenaean course ware		**0**	120	0	2	3	0
Locally-made Mycenaean fine ware		**66**	120	55	2	2	220
Grey Ware (Wheel-made)		**0**	120	0	2	2	0
Local/Mycenaean mixed		**10**	120	8	2	2	33
Imported Mycenaean		**14**	120	12	2	1	23

* the Late Bronze Age sites in Macedonia for which sufficient material has been reported, principally on the basis of French D.H. (1967a), Karamitrou Mentesidi (1999) and additional sites reported since. Only a small number of these have been excavated and it may well be that in comparison with the other regions this is too 'thorough' an identification of Late Bronze Age sites.

TABLE 5.21. A READING OF THE COMPARATIVE LEVEL OF ACCULTURATION IN MACEDONIA

INDICATORS OF ACCULTURATION	REPRESENTATION		
	STRONG	MODERATE	WEAK
RELIGION **Belief systems** **Shrines** **Cult objects**			
SOCIAL ORGANISATION **Urbanisation** **Central Storage**			
FUNERARY CUSTOMS **Mortuary systems** **Ritual/Grave Types** **Gravegoods (Mycenaean type)**			
AGRICULTURE **Crops** **Methods of cultivation** **Storage methods**			

STRONG INDICATORS

percentage representation of sites (log scale) 100 50 20 10 5 2 0

deviation from mean for category 5 2 1.5 1 0.5 0.2 0

TABLE 5.21 (CONT.). A READING OF THE COMPARATIVE LEVEL OF ACCULTURATION IN MACEDONIA

INDICATORS OF ACCULTURATION	REPRESENTATION		
	STRONG	MODERATE	WEAK
DEFENSIVE PROVISION **Cyclopean circuit walls** **Fortifications**			◆
ARCHITECTURE **[Religious]** **Public** **Domestic**			◆
METAL WORKING (Myc/ Cypr) **Workshops** **Moulds** **Finished product** **Ingots**		◆	● ●
POTTERY MANUFACTURE **Kilns/workshops** **[Dolii/pithoi/storage vessels]** **Locally made Myc coarse ware** **Locally made Myc fine ware** **Grey ware (wheel made)** **Local/Myc mixed** **Imported Mycenaean**		◆	● ● ●

WEAK INDICATORS

percentage representation of sites (log scale) 100 50 20 10 5 2 0

deviation from mean for category 5 2 1.5 1 0.5 0.2 0

There is a significant amount of evidence for the domain of *religion* (score 100, deviation 1.37) in the area of western Macedonia in the region around Aiani. Here one site, Servia, on the basis of its pottery, could include a shrine or religious centre, strategically located on a main overland route from Mycenaean Thessaly to the south, while figurines of a possible cult nature have been found at further sites in the region. The evidence from this region indicates a much higher level of influence than in other areas of Macedonia.

While evidence for complex *social organisation* (score 87, deviation 0.75) during the period of strong Mycenaean influence is prolific at some sites, excavations have yet to reach levels predating LH IIIA2. Accordingly it has not been possible to ascertain if the changes only occurred after the impact of influence from the Mycenaean world or preceded it and therefore if they were independent of such impact or possibly resulted from it.. The existence of planned settlements at Assiros and Toumba Thessalonikis in conjunction with the evidence for centralised storage is, however, significant and highly reminiscent of Mycenaean palatial societies in the south. The storerooms at Assiros, Toumba Thessalonikis, and, to some degree, Kastanas and Agios Mamas provide evidence of *agricultural practices* (score 60, variation 0.89) in the variety of carbonised cereals and pulses retrieved during excavation. Certainly at Assiros the amount of storage space far exceeded the potential population and thus indicated the production of a surplus. The adoption of pithoi as storage containers was a widespread innovation in the Late Bronze Age.

Funerary evidence is non-existent in central Macedonia but there is more information from western Macedonia (score 187, deviation 0.64). Several cemeteries provide evidence of strong influence in this sphere. The presence in tombs of local Matt Painted vessels, Mycenaean pottery and occasional 'cross-influenced' vessels suggests not only that Mycenaean pottery played an integral role in the burial practices, but also that the local pottery repertoire was being altered through its influence.

While *defensive provision* (score 13, deviation 0.24) is represented by fortifications at several settlements in Macedonia, none are built in the Mycenaean manner. The nature of the tell settlements with their steep sides suggests that the concept of fortification was much older than Mycenaean contact. Although casemated walls exist both at Assiros and Toumba Thessalonikis, the latter on a particularly massive scale, it has not been possible to establish whether these resulted in any way from contact with the Mycenaeans and the

estimate of the level of acculturation in this domain of social activity is therefore correspondingly low. The same difficulties apply to *architectural* influences (score 0), as so far excavations have not been conducted to a depth necessary for determining their origin. The street plan at Assiros is, however, suggestive.

Metalworking (score 95, deviation 0.64) in the area is limited but the evidence of moulds at a number of sites and the local peculiarities in shape or decoration suggest that there were local production centres. While some moulds display Mycenaean influence they are, as yet, lacking before LH IIIC and are not therefore associated with a period when there was regular contact with the prolific workshops of the Mycenaean heartland.

As in other regions under study it is in the *pottery* (score 277, deviation 0.87) that the most information can be gained. Mycenaean in Macedonia comes from three different types of source – local production centres, provincial (regional) production centres or production centres in the Mycenaean heartland. Imitation Mycenaean was certainly produced from as early as LH IIIA but does not often follow the Mycenaean trends closely, rather developing its own more conservative style (particularly the prevalence of wavy band decoration) and mixing both local and Mycenaean features to produce the desired shapes. There is a clear preference at many sites for the deep bowl, the krater and the jug, vessels which could be used as a drinking set and are vessels that supplement the local pottery repertoire.

Response to Mycenaean contact in Macedonia

The two geographically distinct regions of Macedonia, where Mycenaean characteristics are found in quantity, present two different responses to this influence. In many ways the evidence for acculturation seems stronger in upland western Macedonia where we know much less about the characteristics of the native population and virtually nothing about the character of their settlements. In contrast, in central Macedonia there was, from the Middle Bronze Age on, a distinctive but conservative local culture based on long lasting 'tell settlements'. Here it is more difficult to point to

indubitable Mycenaean influences, apart from those relating to the fashion for and function of Mycenaean pottery, together with the eventual acquisition of Mycenaean pottery technology. Social habits of communal feasting and drinking already established by the beginning of the Late Bronze Age were clearly reinforced and facilitated by the adoption of Mycenaean pottery as a high-status commodity (cf Andreou 2004). Socio-economic changes may well be reflected by the use of pithoi for storage and the provision of granaries where Mycenaean practices may well have been found suitable to accommodate agricultural surpluses. The lack of cemetery evidence prevents us from knowing about a whole range of artefact types, especially those of bronze, and it may be that the very absence of cemeteries is a significant factor, relating to social conditions rather than the completeness of archaeological research.

An additional indication of the depth of the relationship established at least in central Macedonia is the continuity of contact and exchange well into the Iron age as indicated by the finds of Protogeometric pottery as several sites. This relationship may well have been unbroken until reinforced in the 8th century by the start of extensive Greek colonisation in the region.

5.6 WESTERN ANATOLIA

The location of Troy and the occurrence, or not, of the Trojan War have long been a subject of interest and debate amongst scholars. It was the search for evidence for the historicity of the myth that led to the discovery in the 1870s of the Early Bronze Age citadel of Troy and the recognition of the Late Bronze Age citadel by Dörpfeld in 1890 (the year of Schliemann's death).

Many parts of Anatolia had attained a high level of sophistication long before contact with the Mycenaean world occurred. The diversity of cultures gathered under Hittite rule and the influence of advanced cultures further to the east and southeast must not be forgotten when looking for traces of Mycenaean acculturation in the western coastal region of Anatolia. As bridges between East and West, the principal communities of this region engaged in the maritime and overland trade reflected in the wide variety and origin of materials and artefacts in every site. As a result the identification of distinctively Mycenaean features in the material culture or the social organisation it reflects is much more problematic than in the other regions of this study.

One of the most distinctive features of Mycenaean contact in western Anatolia is the number of cemeteries which use chamber tombs and/or tholoi and the number of Mycenaean finds in other local styles of graves. Excavated settlements are still few in number, while survey has increased our knowledge of their relationship to the hinterland and highlighted certain areas where a major settlement must have existed. Survey has also located massive cyclopean-style defensive walls in the Ephesus region.

5.6.1 Religion

Excavations at **Ephesus** in 1989 revealed the remains of what has been claimed as possible Mycenaean cult centre (Bammer 1990, 141-142). A deep sounding was dug under the peripteros of the 8th century Artemision, which revealed the existence of a simple early stone structure (Fig 5.61). Associated with this structure were a few

fragments of Mycenaean pottery dating to LH IIIA2-B[23] (Fig 5.62), and four fragments of animal figurines, apparently unpainted (Fig 5.63), which are difficult to date from the illustrations. The continuity of religious practices at the same site, often in exactly the same location, is documented at a small number of sanctuary sites in Greece, and for example has already been noted at Poseidi in Macedonia (5.5.1). It is, therefore, not surprising to find evidence of Mycenaean presence beneath a later Archaic temple at Ephesus, which was itself succeeded by a Classical version. How far this can be interpreted as a cult centre is questionable, not least because of the diminutive size of the sounding and the absence of other typical Mycenaean cult objects such as rhyta, but the evidence so far is suggestive and the site deserves further exploration at this level.

Fragments of two standard Mycenaean figurines, one a Φ and the other a Ψ type, are reported from **Miletus** in association with Mycenaean domestic structures dating to LH IIIA and LH IIIB. They have been used by the excavator as evidence for Mycenaean ritual (Niemeier 1997, 33-36), but in what is a clear domestic context they may only be the equivalent of 'household gods'. One of the fragments (Fig 5.64c) is decorated with wavy lines across the body and sleeves are indicated on both arms by cross-hatching. This is a common variation of the *hollow* Ψ type (French, E.B., 1971, 131) and although the base is missing it is likely to be of this type. Some very similar figurines have been found at sites in the Mycenaean heartland (*e.g.* Mycenae 39-428). Fragments of painted animal figurines were also found at Miletus (Fig 5.64b). One is probably a bird, although its beak has not survived, dating to LH IIIB (see a similar bird from Amyklai - Demakopoulou 1982, 49, 1988, 103, no. 32). Bird figures of this type, although rare, are found in sanctuary sites and funerary contexts in the Mycenaean heartland. The second is possibly the front half of an ox, but the head and legs are missing. A fragment of another Mycenaean figurine was found recently during excavations at **Liman Tepe – Clazomenae** (Fig 5.64a). Only the head survives but it is probably from a Ψ type figurine which has been published as LH IIIA (Gates 1995, 222; Günel 1999,). Dr. E.B. French however, confirms that while Ψ type figurines start to appear in late LH IIIA2, this head exhibits the characteristics of similar LH IIIC figurines (*pers. comm.*) and should probably be assigned this date.

[23] Bammer (1990, Plate Xva-d) published them as Submycenaean but they are clearly earlier.

5.6.2 Social Organisation

Social changes resulting from Mycenaean contact are virtually impossible to identify in western Anatolia, not least because the level of society existing was already considerably more advanced than in Italy where social responses to influence can be documented to some extent. Troy, Miletus and probably Ephesus were already urban centres before Mycenaean contact was established and it is in such centres and their hinterland that Mycenaean influence is strongest. Changes to the local culture could come from either of two different spheres, the Mycenaean civilisation to the west and the Hittite empire to the east, with western Anatolia acting as the zone of interaction between the two. While it is likely that the Mycenaean influence accelerated the processes of urbanisation no score under this heading can be safely included in the calculation.

In other areas the presence of large central storage facilities as found in Troy could be taken to indicate a change in social practices but this site has clearly been a 'central place' for so long that external influence can be ruled out. The so-called 'corridor house' with storerooms at Miletus (5.6.6) provides the strongest evidence for Mycenaean influence.

5.6.3 Funerary customs

There is more evidence for cemeteries and burial practices in western Anatolia than in any other region of this study, and of these the majority show strong Mycenaean characteristics alongside local traditions. Five cemetery sites (Colophon, Panaztepe, Müskebi, Bakla Tepe and Degirmentepe) have graves which combine standard Mycenaean grave forms with Mycenaean assemblages and suggest that their occupants were buried using typical Mycenaean rituals corresponding to a Mycenaean mortuary system. In a single site (Müskebi) Mycenaean chamber tombs had been adopted for use within the local burial tradition but the grave goods associated with these graves remain purely local in character. At a further 15 sites Mycenaean grave goods, whether pottery or other artefacts, are associated with local grave forms.

Excavations in the spring of 1922 under the joint auspices of the Fogg Art Museum of Harvard College and the American School of Classical Studies at the site of **Colophon (Değirmendere)** revealed Mycenaean chamber tombs and a structure with a diameter of 3.87m that has been classified as a tholos tomb (Fig 5.65) (Holland 1944, 91-171; Bridges 1974, 264-266). Dickinson, however, believes that this rather modest stone-built tomb should not be equated with typical Mycenaean examples which are larger and more carefully built (1983, 57-58). According to Bridges it shows more affinities with Late Minoan tholoi on Crete (1974, 265).

Unfortunately the tomb had been robbed in antiquity and the stones from the vault had been removed so the robbers could gain entrance. The tomb yielded only a few fragments of pottery and bone and according to the dig notebooks a fragment of boar's tusk, which have all since disappeared. Without the material to hand, it has only been possible to rely on the comment by Huxley that the notebooks recorded the Mycenaean pottery as LH IIIB or C (Huxley 1960, 39). Certainly the other chamber tombs in the cemetery are dated to LH IIIB-C (Mee 1988, 139).

Stone-built tholos tombs with oval chambers and short dromoi are now attested at the extensive cemetery at **Panaztepe.** Though their original identification was dependent on the description by the local villagers (Ersoy 1988, 56), excavations since 1985 have investigated them more fully. The grave goods from recent excavations have yet to be published, but an indication of their wealth and variety can be seen in those that were acquired by the Manisa Museum from an antiquities dealer (Fig 5.66). These include imported and locally-made Mycenaean of LH IIIA2 date as well as local Anatolian pottery, a sword blade (Ersoy 1988, 58), several Anatolian knives, sealstones, gold, silver and glass jewellery (Erkanal & Erkanal 1986). Although Ersoy sees these tombs as the burial place of native Anatolians rather than Mycenaean settlers (Ersoy 1988, 82) and Mee questions the need to look for Mycenaean influence in the architecture at all (1998, 140) the recent finds emphasise the strength of Mycenaean influence (Greaves & Helwing 2003, 94).

Forty eight chamber tombs have been excavated in the cemetery at **Müskebi**, all with short, steep dromoi and narrow stomia (Mee 1998, 138). Perhaps because of the nature of the bedrock in this area, many of the tombs had a rough mud plaster on the chamber

walls. Inhumation appears to have been the preferred practice though there were at least three cremations. In tombs 15 and 39[24], which date to LH IIIA1-2, the ashes had been placed in an urn set on the floor of the chamber beside uncremated skeletons (Boysal 1967a, 37-38). While cremation is usually considered a local Anatolian tradition there are cases in the eastern Aegean such as on Astypalaia, Karpathos, Kos and Rhodes (Mee 1982, 8-9, 27-28; 1988, 303) where this practice is employed in LH IIIA, and certainly the grave goods that accompany the Müskebi cremations include typically Mycenaean objects. (It has been argued that the practice of cremàtion, which is used sporadically in LH IIIC in the Mycenaean heartland was adopted from Anatolia, Iakovides 1970, 43-57).

The pottery assemblage (see Table 5.22) clearly reflects Mycenaean burial practices, with a predominance of piriform jars, alabastra and plain as well as decorated kylikes. From the pottery it seems that the cemetery was first used in LH IIIA1, flourished during LH IIIA2-B and declined significantly in LH IIIC. Mycenaean bronze weapons were also found, but they remain unpublished (Mountjoy 1998, 36). Visually, the pottery reflects the sources of contact, *e.g.* the Argolid and Rhodes. Some was apparently also imported from Miletus: a goblet from Tomb 34, for example, has been analysed and is consistent with manufacture in Miletus workshop II (Gödecken 1986, 312).

The close links in the Müskebi pottery with Rhodes are significant, since one would expect to look to adjacent Kos for parallels. A particular example is the occurrence in a number of graves of the brazier, FS 316, a type which is characteristically Rhodian (Fig 5.27). Their function is thought to be connected with fumigation preceding burial rites and certainly the tombs in which they were found were used many times. Similar vessels from Scoglio del Tonno in Italy are undoubtedly imported, but these were found in a domestic context. It seems that Rhodes was playing a significant role in the area, perhaps controlling trade. The peninsula on which Müskebi is located could be controlled politically by the establishment of a Mycenaean settlement there, although none has yet been found.

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[24] From the description given of the dromos the latter is probably a pit-cave (Mee 1998, 138).

Overall this cemetery seems to reflect the presence of Mycenaean settlers and their burial habits, but it is the practice of cremation and the local pottery that indicates that this cemetery was also the burial place for some members of the native population. This is emphasised by the nine instances in which chamber tombs have only local pottery or other artefacts as grave offerings.

TOMB	Total	Date	PJ	SJ	Flask	Pilgrim Flask	Cup	Kylix	Jug	Deep Bowl	Alabastron	Feeding Bottle	Goblet	Askos	Conical Cup	Misc	?	A	Bowl-spouted
2	18	IIIA1-B	2	6	1	1	4	4											
3	5	IIIA2-C		2				1	1	1									
4	3	IIIA2-B							1		1				1				
6	1	IIIB									1								
7	2	IIIA2-B									1				1				
9	1	IIIB							1										
10	1	IIIB							1										
11	2	IIIA2-B	2																
12	2	IIIA2-B						1	1										
13	8	IIIA2-C	2	1	1			1									3		
14	2	IIIA2									1						1		
15	6	IIIA2-B	1	1			1				1	2							
16	3	IIIA1-B						1					1		1				
18	5	IIIB-C						2	2				1						
20	2	IIIA-B						1	1										
21	3	IIIA1		1				2											
22	11	IIIA2	5			1	4									1			
23	3	IIIA2-C		1												1	1		
24	7	IIIA2-B		1		1	1				2					1			1
26	1	IIIA2									1								
27	5	IIIA2-B	1	1					1		2								
28	4	IIIB-C		3					1										
29	2	IIIB		1					1										
30	1	IIIA1					1												

TABLE 5.22 MYCENAEAN STYLE POTTERY FROM THE CEMETERY AT MÜSKEBI

TOMB	Total	Date	PJ	SJ	Flask	Pilgrim Flask	Cup	Kylix	Jug	Deep Bowl	Alabastron	Feeding Bottle	Goblet	Askos	Conical Cup	Misc	?	A	Bowl-spouted
31	1	IIIA2									1								
32	17	IIIA2-C	1	6			5		1		1			1	1	1			
33	8	IIIA2-C	1		1		3		2		1								
34	4	IIB-IIIC	1	2									1						
35	5	IIIA1-C	1	1			1	1			1								
36	4	IIIA2-B	1	1					1	1									
37	1	IIIB									1								
38	1	IIIB									1								
39	5	IIIA1-B	1	1				2	1										
40	1	IIIB							1										
41	2	IIIA2-B	1				1												
42	2	IIIB-C						1	1										
45	6	IIIA2-C		2			1		2									1	
46	2	IIIB					1		1										
47	2	IIIA2		1							1								
Total	**159**		**20**	**32**	**3**	**3**	**23**	**17**	**21**	**2**	**17**	**2**	**3**	**1**	**4**	**4**	**5**	**1**	**1**

TABLE 5.22 MYCENAEAN STYLE POTTERY FROM THE CEMETERY AT MÜSKEBI

Chamber tombs are also reported from **Bakla Tepe:** (www.geocities.com/Athens/Forum/8635/bakla.html for illustrations of some of the pottery) with a similar repertoire of grave goods as found at Panaztepe (Mee 1998, 140). As at many of the cemetery sites that have been excavated, there is evidence of cremation, which was undoubtedly a local practice.

On the hill at **Değirmentepe,** approximately 1.5km south west of Miletus, Wiegand (1908, 21; Fimmen 1924) excavated a cemetery of chamber tombs, which are characteristic Mycenaean rock-cut chambers with a dromos and stomion. This cemetery is without doubt one of the cemeteries associated with the settlement at Miletus. The tomb contents, which were never published (with the exception of two horse bits), were formerly exhibited in the Berlin museum, but were apparently lost during the course of the Second World War. Some of these have been recently rediscovered and studied by Dr Mountjoy who reports that the pottery is mainly of LH IIIB and LH IIIC date (Mountjoy 1998, 53). The fabric analysis and the decoration all indicate local character and production (see below 5.6.8).

Of the 15 burial sites which use local grave types with Mycenaean grave goods, two deserve special mention since they exhibit distinctive local adaptations of Mycenaean practices[25]. Excavations at **Beşik (Yassı) Tepe** (Basedow 2000), on the coast south of Troy, uncovered a substantial cemetery of at least 111 graves buried in the sand, of which a quarter included Mycenaean pottery dating from LH IIIA2 to LH IIIB1[26]. Five basic grave types were identified, the most frequent of which were pithos burials (Korfmann 1984, 21). Evidence for both interment and cremation was found and Mycenaean pottery, both imported and locally-made, probably at Troy, where there must have been a local production centre, as well as examples of the local Grey Ware were found in association with all types of grave[27]. The imported Mycenaean vessels

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[25] The others, not already mentioned, are Çandarlı (Pitane), Çerkes Sultaniye – Bağyolu Çerkes Sultaniye – Bağyolu, Çömlekçiköy, Dereköy II, Düver, Eskihisar (Stratonikeia), İzmir, Küren (Iasos). See also table 4.8.

[26] Although a sherd from a straight sided alabastron from Grave 27 is given a LH IIIA1 date by Basedow (2000, 72), it is likely that the cemetery came into use in LH IIIA2. The absence of Ginger Ware, which is characteristic of LH IIIB in Troy VIIa (Mountjoy 1997, 262), suggests that this cemetery went out of use at approximately the end of Troy VIh.

[27] It must be remembered however, that much of the pottery found was fragmentary and had been scattered over the site by the activities of robbers and disturbances. The absence of a settlement in the area suggests the fragments were all originally part of the grave assemblages, some of which were still *in situ*. Indeed the full publication assigns most of the pieces to specific graves (Basedow 2000).

represent 11% of the pottery from the cemetery, which combined with the locally-made Mycenaean represents almost 30% of the complete pottery assemblage (Basedow 2000, 58). Six graves included Mycenaean-style beads of glass and occasionally gold.

Grave 21 is of particular interest since the burial jar had remained intact and contained the skeletal remains of two children. The grave goods associated with this included over three hundred beads of glass, carnelian and clay (Korfmann 1984, 23) and a long segmented bead of sheet gold. In addition there were 4 Mycenaean five-strand spacer beads in glass (Wace 1921-1922, fig. 89). A complete LH IIIB[28] rounded alabastron (Fig 5.67a) accompanied the burial, probably of local manufacture. Another particularly fine, straight-sided alabastron from Tomb 27 is also of this date (Fig 5.67b). Similar examples are also known from Müskebi (Fig 5.67c) and Halkapinar (Fig 5.67d). The selection of alabastra, kylikes and piriform jars for burial with the dead, suggests a high level of adoption of Mycenaean fashion as in cemeteries in other areas of western Anatolia.

The tomb excavated on the Byzantine citadel at **Selçuk** may have been a chamber tomb, but all that remained was a circular depression approximately 3m in diameter together with some stones which were presumed to have blocked the dromos (Gültekin & Baran 1964, 122-133). The pottery recovered from the tomb included a LH IIIA2 krater in which human bones had been collected (for the date of the vessel see Özgünel 1996, 66). Unless the burial was that of an infant, (and the data is not available for this), then these are the remains of an earlier inhumation in the same tomb. The use of a krater for this purpose is unusual as the Mycenaeans more typically brushed the bones to one side or placed them in pits cut into the floor of the chamber or dromos (Mee 1998, 139).

The evidence from cemetery sites overwhelmingly supports Mycenaean influence and probably some actual settlement, not only in the type of grave goods associated with burials but also the tombs themselves. In contrast to the islands off the coast and Miletus (Değirmentepe), which have become totally immersed in Mycenaean burial

[28] The excavator suggests a parallel from the cemetery at Troy, which has been assigned to the period of VIh and would therefore suggest a date of LH IIIA2. The banding on the body and the use of semicircle fill on the shoulder are more consistent with a LH IIIB date.

rites by LH IIIA2[29], there is, however, strong evidence of local burial practices, particularly in the use of cremation and of local style pottery and other grave goods. It is to be noted, however, that the cemeteries located further to the south, particularly Müskebi, andDeğirmentepe are more Mycenaean in character, while those in the north (*i.e.* nearer to Troy) reflect a greater mix of Mycenaean and Anatolian influence, not just in the pottery repertoire, but also in the variety of burial types.

5.6.4 Agriculture

The information needed to detect any influences from the Mycenaean world in this domain is not as yet available, either from archaeobotanical sources or from references in the Hittite texts. Since the evidence from Miletus suggests the presence of Mycenaeans in and around the settlement (see below) it is not unlikely that they will have brought with them their own farming practices of which no trace remains.

In other regions of this study the presence of storage pithoi in the Late Bronze Age can be directly attributed to Mycenaean contact since they were unknown before this period. In western Anatolia, however, large storage jars were already in use in Troy I, for example (Blegen 1950, 72-73). Kilns for their manufacture have been found at Miletus and Limantepe.

5.6.5 Defensive provision

Stretches of cyclopean walling have been identified at **Ilıcatepe** (Fig 5.68a), south of Kuşadasi (Bammer 1986-7, 23-28). The almost unbroken circuit extended an estimated 320m in diameter with a tower preserved on the north side and an entrance originally to the west. The circuit enclosed an area of approximately 80,000 square metres, more than four times the area of the citadel at Mycenae. In the light of the increasing data suggesting substantial Mycenaean contact with this region, particularly around Ephesus,

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[29] Mycenaean burial practices were already established on the islands of Kos, Rhodes and Psara by LH IIA/B and continued to flourish in these areas so that by LH IIIA2 large numbers of cemetery sites were in use (Mountjoy 1998, 34-35).

this site is significant, although as yet no excavations have been carried out to ascertain whether the possible Mycenaean influence extended further than the walls themselves. Its location on the coast, supplied with a good sheltered harbour, places it ideally to monitor ships sailing up to the mouth of the Küçük Menderes, and one of its functions may have been as a stopping point on this route. A length of cyclopean walling, 750m long has been identified at **Torbalı-Badengediği Höyügü** associated with which was locally-made LH IIIC Mycenaean pottery (Greaves & Helwing 2003, 506). Further stretches of cyclopean walling in the Hellenistic enceinte have also been identified at **Büyükkale** (Fig 5.68b), some 30km inland up the Küçük Menderes, but no other finds of Mycenaean origin have been identified (Bammer 1986-7, 26-27). Since walling of this kind was not employed by the Hittites it is reasonable to associate its introduction at these sites to the Mycenaean contact.

At some period during the late 14th or early 13th century, **Miletus** appears to have been fortified with a circuit wall that may have been 1100-1200m in length (3.8.4; Voigtländer 1985, 82, fig.10). There has been much discussion about the style of these fortifications but the even distribution of the bastions reflects the Hittite casemated tradition rather than Mycenaean defensive architecture (Mallwitz 1959-60, 74-75; Fig 3.32). If, as has been suggested (Niemeier 1997, 32-34), these fortifications were only built after the town was destroyed by fire in LH IIIA2[30] it is possible that the initiative for their construction was Mycenaean rather than Hittite in response to increased Hittite threats/interest in this area (3.8.5)

5.6.6 Architecture

The so-called 'Mycenaean megaron', which was discovered at **Miletus** in the 1970's by Hommel, was found on further study, to contain reused Archaic building material and on this basis has been redated to post-494 BC (3.8.4; Niemeier & Niemeier 1997, 206-8). Parts of the plan of a Mycenaean 'corridor house' (Niemeier & Niemeier 1997, 197-198, fig. 1) with probable storerooms were, however, uncovered in the vicinity of the temple of Athena and may be compared with similar structures at the Menelaion

[30] This destruction is regularly associated with the sack of Millawanda in 1318 by the Hittites.

(Catling 1977, Fig. 5) and the plan of the palace of Nestor at Pylos (Blegen & Rawson 1966, key plan). Continuing excavations beneath a Late Geometric house at Miletus have uncovered the remains of two further buildings (A and B). Building A, known as the 'antenhaus', is built using a style familiar in mainland Greece as well as Troy (Niemeier & Niemeier 1997, 219; Greaves 2002, 57ff). Building B (Fig 5.70, part of which was already excavated in 1957) conforms with Hiesel's oikos 2 Mycenaean domestic building type (Gates 1997, 268; Greaves 2002, 57). The pottery assemblage associated with it was predominantly LH IIIA2. Some fragments of LH IIIB-C pottery suggested a brief reoccupation at that period.

Excavations were conducted at **Panaztepe** in 1994 in an attempt to determine the nature of the settlement associated with the cemetery already discussed above. During the course of the season a building was revealed, constructed on a regular plan with well-dressed ashlar blocks. Associated with this structure were quantities of LH IIIA-B pottery both imported and local, a fenestrated Grey Ware fruit stand and a stone mould (Erkanal 1994, 461-66; 1995, 281-285).

There seems a strong possibility that the community at Miletus was a Mycenaean settlement, which continued the presence of an earlier Minoan settlement or colony and this is supported by the presence of typical Mycenaean domestic structures at the site. How far this influence in architecture extended beyond this settlement is difficult to determine on the current state of excavation reports. The structure excavated at Panaztepe certainly, from brief reports, could be Mycenaean in nature but there is a much greater Anatolian influence at this site. This mix of Mycenaean and Anatolian culture is reflected more strongly in the associated cemetery and suggests the actual presence of some Mycenaeans at least, living within the local community.

5.6.7 Metal working

A bronze sword of Sanders' Type B, was discovered during the excavation of the Agora at **İzmir** (Bittel 1942, 175; Bittel & Schneider 1943, 203) which the excavators suggested may have come from a disturbed tomb. Since it is similar to examples from the Mycenae shaft graves it has been given a date of LH II (Sandars 1961, 27-8). The

same area also produced a mould for glass relief beads – double argonauts and ivy leaves (Fürtwangler & Löschke 1886, 34, Fig. 22). Moulds of this type have been found at a number of sites in the Mycenaean heartland. These are highly portable objects and their presence could well imply the manufacture of beads at İzmir.

The bronze sword found in 1991 at Khattusha (modern **Boğazköy** in central Anatolia) during repair work to a local road has been identified as a version of the Class B sword, although there is some controversy over this since it has no direct parallels in the Mycenaean heartland (Salvini & Vagnetti 1994; Cline 1996 for full debate). It does however have similarities with the Class B sword found at İzmir and both may be developed variations on this sword type (Salvini & Vagnetti 1994, 219-225), or, as Cline argues (1996, 140), have been produced at a western Anatolian workshop as yet unidentified. Remarkably, it has an Akkadian inscription on one side which reads 'As Duthaliya the Great King shattered the Aşşuwa country, he dedicated these swords to the storm god, his lord' (Cline 1996, 138). As the inscription suggests, it was apparently dedicated during the reign of Tudhaliya II (~ LH II) after his victory over the Aşşuwa, according to the Hittite tradition of dedicating spoils of war to gods that had assisted their victory (Ünal *et al.* 1991).

A Mycenaean sword blade, possibly from a Class Di weapon, was among the bronzes clandestinely removed from the cemetery site of **Panaztepe** which also yielded two Anatolian knives (Ersoy 1988 with parallels). A mould from this cemetery is mentioned by Erkanal without giving further details (5.6.6). Given the Mycenaean nature of the burials at **Müskebi** (5.6.3) the metal work recovered from the tombs presumably included swords which remain lost and/or unpublished, which were of Mycenaean types (Mee 1978, 137). There is one dagger on display in the Bodrum museum from this cemetery, which appears to conform to Sandar's Class H (1963, 140; Pl.27, 52), although the pommel tang may be a local variation of the style. However Mountjoy reports (1998, 37) that three out of the four swords found at **Değirmentepe** (Niemeier & Niemeier 1997, 203-204, fig. 2) were of Anatolian/Hittite types, which suggests that in the sphere of weaponry Anatolian traditions remained strong. Also from the cemetery at **Değirmentepe** are two horse bits (Wiesner 1938, 147) which may be of Mycenaean origin as they are similar to that found in a hoard from Mycenae (Sandars 1963, 136, pl.

26:48), although a possible Mesopotamian origin has also been suggested (Przeworski 1939, 194).

5.6.8 Pottery manufacture

Mycenaean-style pottery began to be produced locally at **Troy** as early as LH IIA (Mountjoy 1995, 262; Mommsen *et al.* 2002) and at Miletus certainly from LH IIIA. This Mycenaean pottery in Anatolia reflects the cultural interconnections that existed not only between the west coast of Anatolia and the Mycenaean heartland, but also between that area and Rhodes. It resulted in the development of an East Aegean *koine* pottery style (Mountjoy 1998), which gradually evolved over the period of contact. Anatolian shapes were absorbed into the Mycenaean pottery repertoire and vice versa, culminating in LH IIIC in a reasonably homogenous style. Evidence for this can be seen in the close similarities between the pottery traditions of various areas, for example between Ephesus and Rhodes (Özgünel 1983, 723-727) and Miletus and Kalymnos (Bass 1963). By LH IIIC the local production of Mycenaean-style pottery had penetrated much further east with sites in central Anatolia and in Cilicia, as at Kilise Tepe, producing passable or crude copies of Mycenaean forms.

Seven potters' kilns in the LH IIIA2 destruction levels have been discovered at **Miletus** (Fig 5.71 which indicate that pottery production was an important activity in the Late Bronze Age (Gates 1997, 268)). While the type of kiln structures themselves could reflect Anatolian, (earlier) Minoan or Mycenaean influence in their structure (Mountjoy 1998, 36; see also 3.8.4) the pottery in the kilns and being manufactured at this date was predominantly Mycenaean in style. Four of these kilns (Miletus Type 1) were used to fire single pithoi (Niemeier 1997, 348), and are a type which has also been tentatively identified at Limantepe. Mycenaean pottery was produced in the remaining kilns (Miletus Type 2 & 3). It should also be noted that many of these kilns continued in use through to the Protogeometric period.

Significantly, the majority of this pottery in the destruction level was Mycenaean in type, both fine and domestic wares[31], while only 2% (Niemeier 1997, 348)[32] of the ceramic sample shows affinities with south western Anatolia. According to the excavator this demonstrates the actual presence of Mycenaeans at Miletus. Two long-lived potters' 'workshops' have been identified on the basis of analysis of their products – each using their own distinct clay mixtures and tempering techniques (Gödecken 1988). Workshop I seems to specialize in producing containers for 'traders' such as amphoriskoi and pyxides, with fairly simple decoration including wavy lines, circles and cross-hatching, as well as pottery for domestic consumption. The latter includes one-handled jugs, squat stirrup jars, deep bowls, kraters and monochrome kylikes among its production (Fig 5.72a illustrates some of this pottery). A clear difference in quality has been noted between that which was produced for traders and the vessels that can only have been intended for the local market. The location of this workshop near the beach and the harbour was confirmed by finding a kiln with a pyxis still *in situ* (not far from the foundations of the temple of Athena (Weikert 1957, 112-113). The pottery from this workshop has been found in other areas and there is some suggestion that some of the pottery found in the tombs at Müskebi and Değirmentepe may have been made here. Workshop II produced household wares and some finer pottery, particularly stirrup jars and deep bowls (Fig 5.72b), apparently from the beginning of the Mycenaean period (Gödecken 1988, 312), but its location is unknown.

At Troy in the Middle Bronze Age (early VI) there are a large number of the shapes in Grey Ware familiar from the repertoire of the Middle Helladic period in mainland Greece, though whether this is the result of common origin or influence in one direction or another is outside the scope of this discussion. During the Mycenaean period (mid-late Troy VI) a wide range of Mycenaean shapes were copied first in Grey Ware and later in Tan Ware. Blegen (1953, 41-56, pl. 292a&b) identifies 14 vessel types among the local drinking vessels alone, which did not appear until after the impact of Mycenaean influence.

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[31] Samples have been analyzed by Gödecken (1988, 310-313) who suggests that most of the pottery was locally produced though reservations have been expressed about the interpretation of the results, particularly as the statistical data have not been published yet (French, E.B., 1993, 155).
[32] This has been revised to 95% Mycenaean and 5% local Anatolian by Niemeier (1998).

The range of Mycenaean wares at Troy and at the cemetery at Beşik Tepe, a few kilometres away, is very similar. At **Beşik Tepe** Basedow has identified two classes: the locally-made Mycenaean (MYK1) is very distinctive, not least because of the micaceous inclusions (Basedow 2000, 57-58), and it has been suggested that much of it was made at a production centre in Troy or its immediate hinterland (Basedow 2000, 57). Decorated alabastra and decorated and plain kylikes, piriform jars, cups and bowls were all made locally and represent 18% of the pottery from this cemetery (Basedow 2000, 58). One example is worth special mention. An undecorated 'piriform jar' recovered from grave 94 combines a coarse fabric, more usually found in 'kitchen' wares, with a standard Mycenaean shape. Both this and the quality of execution (particularly the warped shape) suggest its local manufacture (Basedow 2000, 33, Tafel CXII, Abb. 4). The second class (MYK 2) is very heterogeneous and the area(s) of its manufacture remains uncertain. This accounts for a further 11% of the pottery assemblage (Basedow 2000, 58). Recent analyses of sherds from Schliemann's collection in Berlin and Bonn indicate that the majority of Mycenaean pottery in every phase is of local Trojan manufacture, though several different recipes and firing techniques were in use at different periods (Mommsen *et al.* 2002, 202-203). It may be that this second class of Mycenaean will also prove on analysis to have been made in the region.

The extent of the adoption of Mycenaean technology for the manufacture of decorated or undecorated pottery in the local tradition at both Miletus and Troy is far stronger than in any other region of this study and is all the more surprising considering the well-established traditions of kiln-fired wheel-made pottery at both these sites. In addition it should be noted that the proportion of Mycenaean wares in use is higher in this region, which also served as a production centre for a wider area.

Locally-made LH IIIA Mycenaean pottery from Anatolia adopts various local Anatolian shapes into the repertoire, particularly the carinated krater (FS 284), which was produced at Troy in the local Grey Ware and is equivalent to Blegen's shape C82 (1958, fig. 294). The Mycenaean version differs only in the number and style of the handles – three handles, each formed from three rolls of clay, while the Anatolian has two single handles (Fig 5.73).

The Anatolian flask, which has a longer neck than Mycenaean versions and a rib down the side (Fig 5.73b from **Panaztepe**), is found with Mycenaean linear decoration. By late LH IIIC these were being produced in Rhodes and Kos, using the Anatolian shape but with the rib removed and replaced with a zigzag band (Fig 5.73d; Mountjoy 2000a). Wavy band decoration appears to be popular and a particular local trait at **Troy** during LH IIIA2 is the painting of a ring around the handle, which is a continuation of a tradition found normally on LH IIIA2 goblets in the Mycenaean heartland (Fig 5.75a). Locally-made LH IIIA pottery is distinguishable from later examples by the lustre of its paint.

Multi-zonal decoration is also a feature that developed in the East Aegean-West Anatolian interface, with two or more zones of decoration above the belly band, (a feature that has already been noted in the locally manufactured Mycenaean pottery at Broglio di Trebisacce in southern Italy 5.3.8). It can be seen particularly on piriform jars and kraters dating to LH IIIC (Mountjoy 1986, 204-205).

In LH IIIB this distinct Anatolian flavour in the local Mycenaean pottery seems to disappear (Mountjoy 1998, 45), perhaps as a result of the destruction of two of the main production centres, Troy and Miletus, in LH IIIA2. The local Grey Ware typical of earlier deposits is abruptly replaced by Tan Ware, though the repertoire of shapes is unchanged. The locally-made LH IIIB Mycenaean pottery at Troy has been assigned the name Ginger Ware (Mountjoy 1997a). This pottery consists of Mycenaean shapes made in Tan Ware and painted in the Mycenaean-style, using a matt paint, whereas previously the paint had been lustrous. Occasionally the surface is burnished, as Tan Ware is. According to Blegen its colour is produced by firing in an oxidising atmosphere in an updraft kiln (Blegen 1953, 36-37; Mountjoy 1997b, 259-267). The range of Mycenaean shapes produced in this ware is not large but they include the closed and open shapes listed in the Table below. Small bowls in Ginger Ware are particularly characteristic of LH IIIB2 (Mountjoy 2000b, 301).

TABLE 5.23 SHAPES OF LH IIIB MYCENAEAN POTTERY PRODUCED LOCALLY AT TROY (GINGER WARE)

	FS
Closed shapes:	
Alabastron	86
Alabastron, SS	98
Amphora	
Conical rhyton	199
Jug	
Stirrup jar	174
Open shapes:	
Basin	294
Deep Bowl	284
Krater	9, 281
Kylix	258
Mug	226

Most of the locally-made Mycenaean at Troy belongs to open shapes rather than the closed shapes which were usually exported for their contents. The Ginger Ware appears to be used to make fine tableware, while the unpainted and domestic pottery was made in Tan Ware and coarse ware.

Three of the local Anatolian shapes were also produced in this Ginger Ware at Troy. These include the stand (shape D45), small hemispherical bowl (A73), and the carinated krater (C 80/82). The carinated bowl (A72) is seen as the Anatolian response to the deep bowl. Anatolian flasks (shape B41) are also found with Mycenaean decoration at Troy.

By LH IIIC the importation of Mycenaean pottery had almost completely ceased and the locally produced Mycenaean pottery had developed an homogenous style. Anatolian influence had all but vanished. Some shapes remained popular after their 'demise' in the Mycenaean heartland. One particular example is the large piriform jar FS 37 which continued in popularity into LH IIIC early, but is relatively rare in mainland Greece after LH IIIB (Mountjoy 1986, 137,170). Amphoroid kraters are also a popular LH IIIC shape and they differ from mainland types, not only in shape, with globular body, short straight neck and small pedestal base, but also in their manner of decoration. Fig 5.76a illustrates an amphoroid krater from **Değirmentepe** decorated with whorl shells. These are sketchily drawn and their tails extend well below the banding. This poor execution of whorl shells can also be seen on a mug from the same cemetery and both were probably produced by local potters at Miletus. Two fragments (Fig 5.76b&c) of kraters

are also decorated with whorl shells, each a slightly different variation, but obviously with the same crude style. These fragments have been identified as local imitation Mycenaean produced at Workshop *I* at *Miletus (Gödecken 1986, 307).*

The amphoroid krater from Değirmentepe also illustrates clearly another feature that is common to locally produced Mycenaean in Anatolia. The rough circle painted round the handles on some vessels (see the LH IIIA2 kylix from Troy in Fig 5.74a) in earlier periods has been reversed to form a frame for the zone of decoration. The same feature can sometimes be extended below the banding under the handle to form a 'moustache'. Two three-handled jars, both in foreign museums but apparently from Anatolia, illustrate this fashion clearly (Fig 5.74b), although *the bands are generally less* exaggerated when painted on kraters.

This list is not exhaustive but it serves to illustrate variations in locally-made Mycenaean which can help to identify it visually where analyses have yet to be conducted. Further away from the possible ports of trade and their spheres of influence there is less imported Mycenaean and the locally-made Mycenaean pottery becomes less 'Mycenaean' in flavour. Pottery from Sardis and Aphrodisias for example is Mycenaean in style but locally produced (for Sardis: Mee 1978, 144; for Aphrodisias: Marchese 1978, 20ff), and its decoration is crudely executed.

A similar picture is evident to the south east in Cilicia, where crude copies of Mycenaean vessels were produced during LH IIIC, known as 'Kindergarten' ware. These are decorated with poor imitations of Mycenaean patterns ranging from zigzags to degenerated spirals (Fig 5.78). This type of pottery has been found at the site of Kilise Tepe on the Göksu river. In the excavations so far eighteen vessels have been recovered which fall into two distinct categories. The first includes five closed vessels, including stirrup jars, which are made from 'imported mainstream fabric' (French E.B. *pers. comm.*) and the second, predominantly deep bowls, appear to be of local fabrics. It is not possible to date any of the vessels closely, though a date somewhere in LH IIIC has been suggested.

Pottery Fashions in western Anatolia

Troy

The analysis of pottery by shape and period included in the Table below is based on the reworking of the dates of Blegen's published material from Troy and does not attempt to include the large amounts of pottery from the recent excavations, still under study. I am grateful to Dr. Mountjoy for providing me with the revised dating of fragments (as included here) where these were large enough and distinctive enough for this to be possible.

TABLE 5.24 MYCENAEAN POTTERY FASHIONS AT TROY BY SHAPE AND PERIOD

	II A	II A/B	II B	III A1	III A2	III B	III B2/C early	III C early	Total
Alabastra			7	3	3	3	3		19
Alabastra, S-S				1	4			1	6
Amphorae/Hydria			2	1		3			6
Amphroid Kraters					5				5
Basins						3			3
Basket Handled Bowls*						1			1
Bowls			1	2	3	6	1	2	15
CANJ					1				1
Carinated Kraters*					1	6	1	1	9
Collar-neck Jars						1		2	3
Cups	2		1	7	4				14
Deep Bowls					2	7	9	1	19
Feeding Bottles					1				1
Flasks					2				2
Goblets			6	1					7
Hemispherical Bowls*						1			1
Jugs		4	3		2	2	2	2	15
Kraters					8	3			11
Kylikes				3	69	11	3		86
Mugs				1	3	4			8
Narrow Neck Jugs				1	3				4
Piriform Jars		1	10	3	14	1			29
Plates*					7	2			9
Rhyta					2	1	1		4
Spouted Bowls					2				2
Stands*						1			1
Stemmed Bowls					5	1	1		7
Stemmed Plates*					7	1			8
Stirrup Jars					7		2	1	10
Vapheio Cups			1						1
Total	**2**	**5**	**31**	**23**	**155**	**58**	**23**	**10**	**307**

* indicates shapes of the local Anatolian repertoire that have been painted in the Mycenaean-style

The table shows a remarkable wealth of pottery in the LH IIIA2 levels which is in keeping with the time of maximum expansion into other areas of the west coast of Anatolia to the south. However, it must be noted that full publication of the material from recent excavations has yet to be accomplished and it may well address the imbalance of finds across the periods. From LH IIIB onwards the majority of the material is locally-made, as explained above.

There is an unusual number of kylix fragments, with approximately 44% of the material from LH IIIA2 assigned to this category of vessels. While in the Mycenaean heartland kylikes are prolific in LH IIIA2 the proportion here is even greater. It is certainly not a shape traditional in the local repertoire and its popularity could be the result of specific local preference. The popularity of the kylix in Anatolia is very different from their almost total absence in Italy and Sicily and may suggest the stronger Mycenaean presence or the wholehearted adoption of Mycenaean drinking habits. It is noteworthy that the kylix is one of the shapes made in the undecorated local ware (see above).

Apart from kylikes there is a wide range of shapes present at Troy, many of them produced locally, though none as common. Among these, kraters of both Mycenaean and Trojan shape are unusually well represented, while deep bowls reflect the shift in Mycenaean fashion away from the kylix, after the beginning of LH IIIB. Curiously in contrast with Macedonia, for example, the linear decorated semi-globular cup (FS 222) appears to be absent. Among the closed shapes alabastra, piriform jars and stirrup jars are all reasonably frequent, again in contrast with Macedonia.

Müskebi

The Mycenaean material presented in the Table below has been classified into shape and date after a re-evaluation of the published material and includes all the Mycenaean pottery found in the tombs.

TABLE 5.25 MYCENAEAN POTTERY FASHIONS AT MÜSKEBI BY SHAPE AND PERIOD

	LHI	LHIIIA	LHIIIB	LHIIIA1	LHIIIA2	LHIIIB	LHIIIC	LM	Total
?					1		2		3
Alabastra					1				1
Alabastra, S-S					13	3			16
Askos							1		1
Basket vase					1				1
Bowl, one handled						1			1
Bowl, spouted					1				1
Bowl, stemmed							1		1
Brazier					4				4
Cup			1		9	3			13
Cup, carinated					5	3			8
Cup, conical						5			5
Cup, ring handled					1				1
Deep Bowl						1	1		2
Flask					1		1		2
FS 102					1				1
Goblet			3	3					6
Jug					3	17	3		23
Jug with cut-away-neck					1				1
Jug, trefoil mouthed							1		1
Kylix				8	7	3	1		19
Mug					5				5
Pilgrim flask						2			2
Piriform Jar					13	9	4		26
Stirrup Jar					19	12	2	1	34
Stirrup Jar, large					1				1
Total			**4**	**11**	**84**	**60**	**17**	**1**	**176**

The cemetery at Müskebi was mainly in use in LH IIIA2 and LH III B. The most popular closed shapes are clearly the stirrup jar (34 examples) and the piriform jar (26 examples). Both alabastra and jugs are common, while among the open shapes kylikes and different varieties of cup are well represented. This pattern of grave contents is consistent with the patterns of burial in the Mycenaean heartland and as new excavations are showing (McGeorge, *pers. comm.)* there are particularly strong parallels with Rhodes, not only for the pottery, which was in this case mostly imported from Rhodes, but also the details of the tomb structure. The significance of the presence of four incense burners in the graves has already been noted. Mugs, of which there are a number of examples, are most probably produced locally, possibly at Miletus, and are a feature of the East Aegean-West Anatolian interface.

5.6.9 Assessment of Level of Acculturation

The pattern of exploration and discovery in western Anatolia prevents a unified picture of the material culture of the region. Clearly the major communities such as Troy and Miletus had achieved a high level of social organisation and economic success by the Middle Bronze Age. It is difficult to know for the Late Bronze Age whether interaction with the Mycenaean heartland prompted further changes. Thus in areas such as social organisation and urbanisation no conclusions can be drawn about the nature of Mycenaean influence. In contrast almost everywhere where cemeteries and burials have been found they reflect strong Mycenaean characteristics.

Table 5.26 shows the summary of numerical data for each of the eight domains of social activity in Anatolia based on the discussion in the previous sections and also on the tabulation of Mycenaean-style pottery in Table 4.6.

Table 5.27 presents the same information in a visual form allowing a more general impression of the level of acculturation for each of the eight domains of social activity.

TABLE 5.26 ACCULTURATION IN DOMAINS OF SOCIAL ACTIVITY IN ANATOLIA

Domains of social activity		Number of sites in Anatolia with features	Total number of sites in Anatolia	% representation	weighting factor category	weighting factor sub-category	weighted value
RELIGION			60				**117**
Belief systems		**0**	60	0	10	4	0
Shrines		**1**	60	2	10	3	50
Cult objects		**2**	60	3	10	2	67
SOCIAL ORGANISATION			60				**0**
Urbanisation		**0**	60	0	8	4	0
central Storage		**0**	60	0	8	3	0
FUNERARY CUSTOM			60				**707**
Mortuary systems		**5**	60	8	8	4	267
Grave types		**1**	60	2	8	3	40
Grave goods (Mycenaean type)		**15**	60	25	8	2	400
AGRICULTURE			60				**0**
Crops		**0**	60	0	6	4	0
Methods of cultivation		**0**	60	0	6	4	0
Storage methods		**0**	60	0	6	2	0
DEFENSIVE PROVISION			60				**93**
Cyclopean circuit walls		**3**	60	5	4	4	80
Fortifications		**1**	60	2	4	2	13
			60				
ARCHITECTURE			60				**27**

Domains of social activity		Number of sites in Anatolia with features	Total number of sites in Anatolia	% representation	weighting factor category	weighting factor sub-category	weighted value
[Religious]		**0**	60	0	4	4	0
Public		**0**	60	0	4	3	0
Domestic		**2**	60	3	4	2	27
METAL WORKING (MYC - CYPRIOT)			60				**45**
			60				
Workshops		**0**	60	0	3	4	0
Moulds		**0**	60	0	3	4	0
Finished product		**3**	60	5	3	2	45
Ingots		**0**	60	0	3	1	0
			60				
POTTERY			60				**447**
			60				
Kilns/workshops		**3**	60	5	2	4	40
[Dolii/pithoi/storage vessels]		**0**	60	0	2	3	0
Locally-made Mycenaean course ware		**2**	60	3	2	3	20
Locally-made Mycenaean fine ware		**35**	60	58	2	2	233
Grey Ware (wheel-made)		**0**	60	0	2	2	0
Local/Mycenaean mixed		**5**	60	8	2	2	27
Imported Mycenaean		**36**	60	60	2	1	120

TABLE 5.27. A READING OF THE COMPARATIVE LEVEL OF ACCULTURATION IN WESTERN ANATOLIA

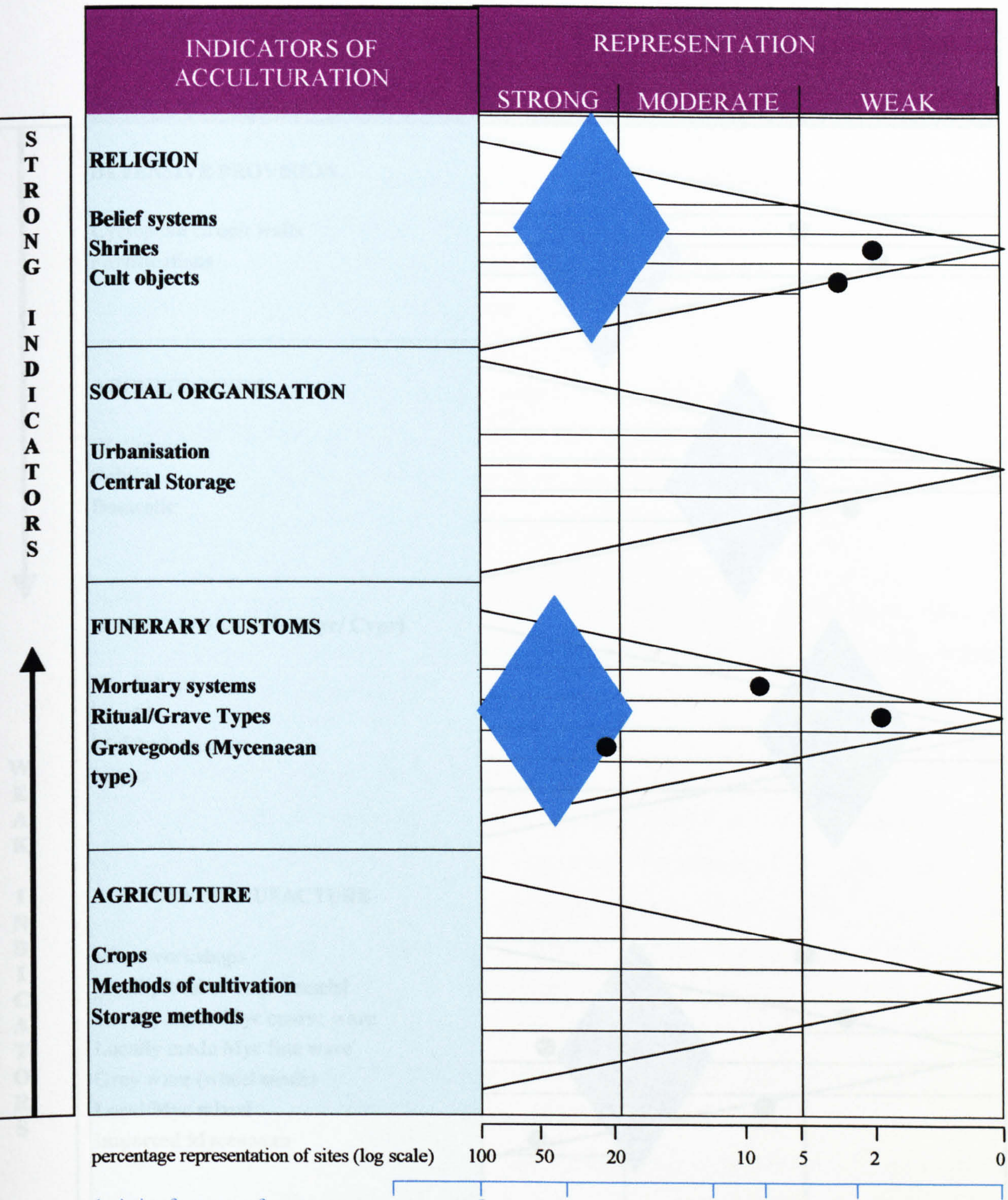
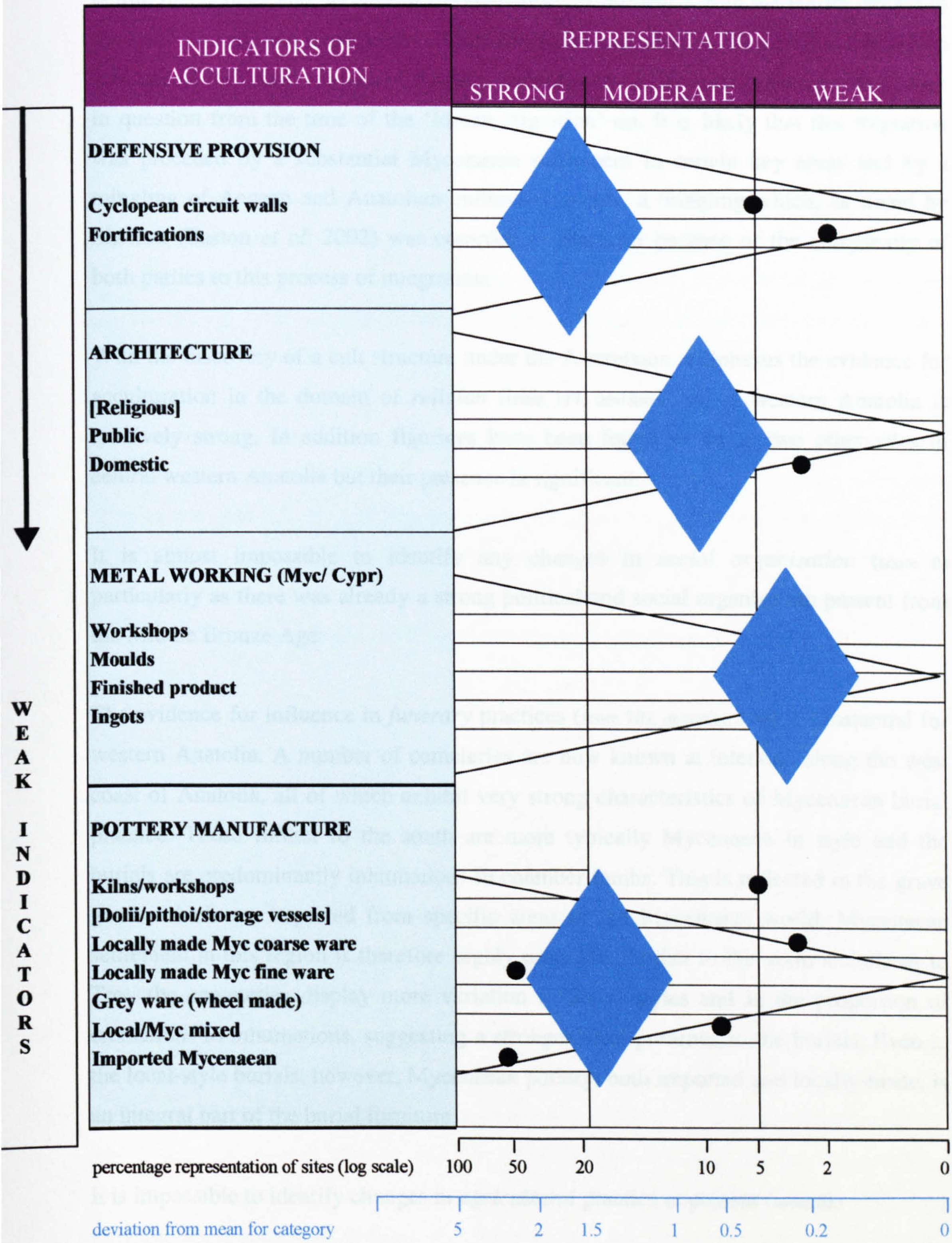


TABLE 5.27. (CONT.) A READING OF THE COMPARATIVE LEVEL OF ACCULTURATION IN WESTERN ANATOLIA



Although positive evidence for the spread of Mycenaean influence cannot be cited in a number of domains because of the advanced level of social organisation which existed before this contact and because of the possibility of influence from the Hittite empire to the east, the enduring depth of this influence is demonstrated by the fact that this region was one of the 'core' regions of Archaic Greece, whose 'Hellenic' character was never in question from the time of the 'Ionian migration' on. It is likely that this migration was preceded by a substantial Mycenaean settlement in certain key areas and by a mingling of Aegean and Anatolian cultural elements, a mingling which, as noted by Sherratt (Easton *et al.* 2002) was complex in character because of the complexity of both parties to this process of integration.

With the discovery of a cult structure under the Artemision at Ephesus the evidence for acculturation in the domain of *religion* (score 117, deviation 1.60) in western Anatolia is relatively strong. In addition figurines have been found so far at two other sites in central western Anatolia but their presence is significant.

It is almost impossible to identify any changes in *social organisation* (score 0) particularly as there was already a strong political and social organisation present from the Middle Bronze Age.

The evidence for influence in *funerary* practices (score 707, deviation 2.40) is substantial for western Anatolia. A number of cemeteries are now known at intervals along the west coast of Anatolia, all of which exhibit very strong characteristics of Mycenaean burial practice. Those further to the south are more typically Mycenaean in style and the burials are predominantly inhumations in chamber tombs. This is reflected in the grave goods which are imported from specific areas of the Mycenaean world. Mycenaean settlement in this region is therefore highly probable. Further to the north and closer to Troy the cemeteries display more variation in burial styles and in the proportion of cremations to inhumations, suggesting a stronger local presence in the burials. Even in the local-style burials, however, Mycenaean pottery, both imported and locally-made, is an integral part of the burial furniture.

It is impossible to identify changes in *agricultural* practice at present (score 0).

Mycenaean-style *defences* (score 93, deviation 1.66) have been identified in the region around Ephesus although no other evidence has been found to confirm an Aegean origin. The fortification walls at Miletus, although their date indicates a Mycenaean initiative, have more in common with Hittite walling. Some *architectural* (score 27, deviation 0.85) influences can be identified at Miletus in domestic contexts. Influences of a lesser degree are visible at sites such as at Panaztepe, further to the north.

While a number of metal objects have been found in Anatolia they cannot readily be equated with their Mycenaean counterparts. There is surprisingly little evidence to identify a *metal working* (score 45, deviation 0.30) industry in the west coast, either for production of local or Mycenaean artefacts, though it is inconceivable that such workshops did not exist.

The evidence for Mycenaean influence in *pottery manufacture* (score 440, deviation 1.40) is substantial at sites along the west coast, with local production at a number of centres from at least LH IIA. By LH IIIA2 an eastern Aegean *koine* had developed between the islands of the Dodecanese and the west coast of Anatolia. Influence extends into the local pottery repertoire, as can readily be documented at Troy and, correspondingly, a number of Anatolian shapes are incorporated into the Mycenaean repertoire.

Response to Mycenaean contact in Anatolia

Given the long-established Anatolian traditions evident at the major sites in western Anatolia, which clearly rank as urban centres, the extent of the penetration of Mycenaean practices, technology and fashions is all the more remarkable. At Troy not only Mycenaean-style pottery but also Mycenaean shapes in local wares demonstrate the extent to which these met local needs in the contexts of feasting and drinking. Other aspects of Mycenaean civilisation found no place in this prosperous community. In the region from Smyrna to Müskebi the dominance of Mycenaean-style tomb assemblages and tomb architecture indicates a strong desire to replicate the social and funerary practices these represent, p*erhaps as a result of* political allegiances developed with the

Mycenaean Ahhiyawa. Mycenaean 'colonisation' is another possible explanation but hard to demonstrate without anthropometric data. Here too, Mycenaean pottery was widely in use and the potters contributed to the development of a distinctive style used over a much wider region. At Miletus, if Niemeier's report of the proportions of Mycenaean versus local pottery is correct, Mycenaean cultural influences are paramount and the possibility that this developed through immigration or acculturation into a Mycenaean city is hard to dispute.

If this is the case and the equation between Miletus and Millawanda is correct it is hardly surprising that Millawanda was more often linked to the Mycenaean world than the Hittite.

6. PURPOSE: THE EXTENT AND IMPACT OF MYCENAEAN CONTACT AND ITS ORIGINS – THE WIDER VIEW

In the previous chapter each area has been discussed separately in terms of the level of acculturation exhibited in each. Each region has a different history of research as outlined in Chapter 1 and a different pattern of archaeological evidence to illustrate its geographical context, indigenous culture and level of social complexity during the second half of the second millennium BC (Chapter 3). The pattern of finds in each area suggests the location of possible ports of trade, the routes by which these were reached and their role in the Mediterranean Late Bronze Age economy (Chapter 4). A comparison between the areas helps to highlight some of the most important conclusions in respect of the date of contact and the most significant aspects of its impact (6.1, 6.2). The extent to which ports of trade promoted acculturation in each region (6.3) and the depth of their influence in each of the domains of social activity (6.4.1-6.4.8) is also illuminated by this comparison. In addition preferences for particular shapes of Mycenaean pottery vary from region to region and suggest fruitful areas for further research as data becomes available (6.4.8). At the same time the purpose for which contact was initiated can be addressed (6.5), as well as the relative importance of each area to Mycenaean civilisation as a whole (6.6).

6.1 The Earliest Mycenaean Contact

With the exception of Sardinia which does not appear to have had any contact with the Mycenaean world before LH IIIA2, although it was already part of the western Mediterranean trade network with links to Sicily and Spain, all the regions of this study were affected by Mycenaean contact from the early Mycenaean period and some were already in contact with the Aegean during the Middle Helladic (as shown in 4.3).

The earliest contact in the western central Mediterranean was long believed to be in the **Aeolian Islands**, and at the island of **Vivara** around the end of the Middle Helladic and the beginning of the LH I period. More recent work in **Sicily** at the sanctuary site of Monte Grande suggests that this picture is too narrow and contact was already more widespread at this early period. Monte Grande, however, is not a coastal site and as such it is strange to find early Mycenaean pottery so far inland without any apparent port of trade through which this material could have arrived.

The Aeolian Islands, rich in obsidian and with abundant springs, were a natural focus for early trade, particularly as they provided a safe haven just a short distance away from the treacherous straits of Messina. Vivara, too, may well have played a role as a stopping point on one of the principal routes for the export of amber. Both may have become significant ports of trade. The Vapheio cups, which were imported in some number to the islands - and indeed to the interior of Albania - are indicative of this period of early contact. The material from Porto-Perone -Saturo, in **Southern Italy** suggests it could have been established early as a port of trade, serving as a resting place on the long haul journey to Lipari and beyond. Its double harbour could provide shelter whatever the direction of the wind.

The first Mycenaean swords in **Epirus** and **Albania** belong to the same early period and may owe more to the desire of important locals to acquire Mycenaean goods, rather than any desire on the part of the Mycenaeans themselves to exploit such an unpromising landscape.

Sporadic contact between the S. Aegean and **Macedonia** had taken place since the EH period, but curiously, despite its potential mineral wealth, Mycenaean impact on coastal Macedonia did not occur until the LH II period. It effect is restricted to sites which are strategically located on the coast. Thus the site of Torone, as in later periods, has a role as a landmark for sailors at sea. What brought Mycenaeans to Macedonia is uncertain, but the discovery at Agios Mamas and Kastanas of simple gold ornaments, not unlike material from the Shaft Graves at *Mycenae, suggests some* relationship between the two and the possibility that it was the hunt for gold, which is such a conspicuous *element in early*

Mycenaean culture and was, until the beginning of the 20th century, relatively abundant in Macedonia, which motivated the contact.

It is not surprising to find that the earliest contact in **Anatolia** dates to the beginning of LH I, since there is some indication of Minoan interest from the MM period. Material of LH I date, though not prolific, is sparsely distributed but located at strategic points along the coast, such as Troy, Clazomenae and Miletus. Pottery of this date also reached as far as Cilicia where it has been found at Mersin and Tarsus, both of which were already significant players in the middle eastern trade networks and were logical stopping points on the route from Syria to the Aegean. The interior of Anatolia is rich in minerals which may have given some stimulus to Mycenaean traders although the coastal fringes of Anatolia also offer a climate and environment familiar to those from the Mycenaean heartland. The strategic establishment of ports of trade along the west coast would have enabled Mycenaean vessels to control the Aegean sea, when Mycenaean power reached its height in LH IIIA and LH IIIB.

6.2 THE FIRST SIGNIFICANT IMPACT

While the earliest evidence for Mycenaean contact is usually imported pottery, or more rarely weaponry, it is hard to detect any response in the native communities until **LH IIIA2**, the period of the most rapid expansion in Mycenaean trade, with the exception of one region, Western Anatolia. Here some sites, such as Troy and Miletus, were already beginning to produce Mycenaean pottery for their own consumption in LH IIA.

The impact of this trade was most apparent in the other regions at the point when the developments in the Mycenaean heartland - the emergence of the full palatial system and the sophisticated economy associated with it - created a pressing need for new resources, especially metals. As a result, increasing Mycenaean trade interacted with the advances in social complexity in each region to instigate or accelerate changes in different aspects of each local culture (6.4.1-6.4.8).

Sites of especial importance during LH IIIA2 seem to have been Thapsos in Sicily, Scoglio del Tonno on the gulf of Taranto in southern Italy, Miletus and Müskebi on the west coast of Anatolia, and Troy, which governs the entrance to the Dardanelles. In Sardinia, where recognition of the island's potential as a source for metals at this period prompted regular contact, Nuraghe Antigori is obviously one of the principal sites. Few sites in Macedonia have been explored for this period, though it is likely that Toumba Thessalonikis, the largest of the Late Bronze Age tell sites, played a leading role in the region.

The following period, **LH IIIB,** was a time of consolidation both in the Mycenaean heartland and in its contacts with the periphery. Acculturation had progressed to such a degree in Macedonian and south Italy that locally produced Mycenaean pottery had become a significant component of the assemblage at almost every site, as it had been in western Anatolia since LH IIIA1. Sites which may have provided important arenas for the interaction of Mycenaean and native practices now include Cannatello and Madre Chiesa di Gaffa in Sicily, Broglio di Trebisacce in southern Italy and Aiani in western and Assiros in central Macedonia. In Epirus it is possible that Ephyra fulfilled this role.

6.3 The Role of Ports of Trade

Already from the start of the Mycenaean period a number of sites provided meeting points for traders from different directions. Notable examples are Vivara and Lipari, which may conform to Luke's Type B port of trade (2.4.4). These island settlements are the forerunners of the clear network of points of contact as possible ports of trade, which seems to have been established by LH IIIA2 in strategic locations provided with safe harbours and governing entrances to rivers. Almost all of these appear to have been significant regional centres. It is unlikely, in most cases, that these ports were directly controlled by Mycenaean incomers, and they correspond more comfortably to Luke's Type A which is controlled by the local communities, but with a considerable degree of mutual cooperation with the Mycenaean traders. The only putative ports of trade (Type C) where the permanent presence of Mycenaeans themselves can as yet be demonstrated are at Thapsos in Sicily (5.2.9) and at Miletus on the West coast of Anatolia (5.6.9).

In most cases the proposed ports of trade have more Mycenaean pottery than other sites (4). Imported wares are frequent, even after local production started, especially in comparison with inland sites. This suggests that the 'genuine article' was freely available as a result of

immediate access to regular trade. Scoglio del Tonno in southern Italy, stands out for the wealth of its imported Mycenaean finds and its particular link with the island of Rhodes. Apart from fine pottery finds include 'Rhodian' cooking ware braziers, Mycenaean knives and Mycenaean anthropomorphic and animal figurines. The distinctive stirrup jars and piriform jars imported in bulk seem to be the products of a small number of potters. Presumably these cargoes were intended to be 'broken' and distributed inland.

Without archival evidence it is not possible to know how far these proposed ports of trade functioned on the fully commercial basis that is exhibited in some of the Syrian and Egyptian archives, but it seems probable (2.3.3). They provided markets for the acquisition of raw materials and other commodities, perhaps even slaves. It is also possible that those who controlled such ports of trade derived an 'income' from exacting dues for safe anchorage for vessels travelling to more distant parts of the Mediterranean.

6.4 THE EXTENT OF ACCULTURATION:

Acculturation can be demonstrated to a different extent in each of the regions (Chapter 5). The evidence is summarised in Table 6.1 where the weighted numerical scores for the domains of activity in each region are set out (as in Tables 5.3, 5.8, 5.12, 5.14, 5.19 & 5.25) together with their deviation for the mean value of all the regions. Table 6.2 illustrates the same information in graphic form. In Table 6.3 the coloured lozenge for each region reflects the deviation from the mean for all the regions against a logarithmic scale. The highest levels of acculturation may be seen in Sicily and Anatolia, while the lowest are in Sardinia and Epirus/Albania. Naturally each region presents evidence for different aspects of acculturation and these will be considered in the same order as in Chapter 5.

Acculturation may be judged in three different ways. The scores for each domain of *social* activity provide an objective basis for statistical comparison between different regions as does the cumulative total for each region as a whole. The strength of specific clusters of evidence allows an intuitive estimate of the extent of Mycenaean influence – or lack of it. The depth of impact of Mycenaean influence may be judged on the strength of the persistence of 'Mycenaean' characteristics after the end of the second millennium.

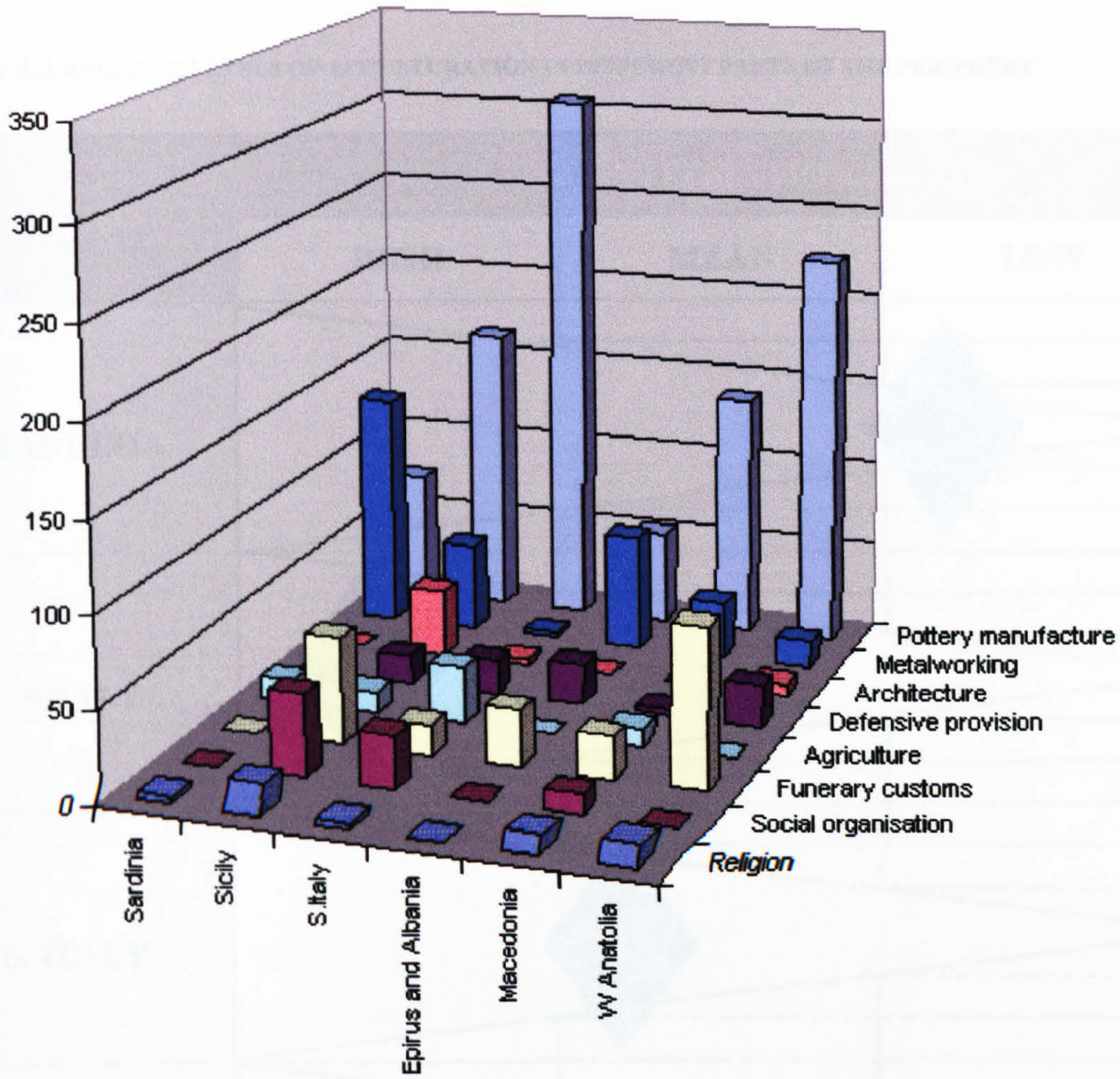
TABLE 6.1 WEIGHTED SCORES FOR EACH DOMAIN OF SOCIAL ACTIVITY AND CUMULATIVE TOTALS FOR EACH REGION

DOMAIN	Sardinia	Sicily	S Italy	Alb/Epirus	Macedonia	W. Anatolia	Mean value
Number of sites	60	50	75	70	120	60	73
RELIGION	**33**	**160**	**27**	**0**	**100**	**117**	**73**
deviation	0.46	2.20	0.37	0.00	1.37	1.60	-
Belief systems	0	0	0	0	0	0	0
Shrines	0	120	0	0	50	50	37
Cult objects	33	40	27	0	50	67	36
SOCIAL ORGANISATION AND HABITS	**0**	**368**	**235**	**0**	**87**	**0**	**115**
deviation	0.00	3.20	2.04	0.00	0.75	0.00	-
Urbanisation	0	320	171	0	27	0	86
Central Storage	0	48	64	0	60	0	29
FUNERARY CUSTOMS	**0**	**480**	**139**	**251**	**187**	**707**	**294**
deviation	0.00	1.63	0.47	0.86	0.64	2.40	-
Mortuary systems	0	64	0	46	0	267	63
Grave types	0	0	32	0	0	40	12
Gravegoods (Mycenaean type	0	416	107	206	187	400	219
AGRICULTURE	**80**	**72**	**192**	**0**	**60**	**0**	**67**
deviation	1.19	1.07	2.85	0.00	0.89	0.00	-
Crops	0	0	64	0	0	0	11
Methods of cultivation	40	0	0	0	0	0	7
Storage methods	40	72	128	0	60	0	50
DEFENCE	**0**	**64**	**75**	**91**	**13**	**93**	**56**
Deviation	0.00	1.14	1.33	1.63	0.24	1.66	-
Cyclopean circuit walls	0	0	0	91	0	80	29
Fortifications	0	64	75	0	13	13	28
ARCHITECTURE	**0**	**152**	**11**	**0**	**0**	**27**	**32**
Deviation	0.00	4.82	0.34	0.00	0.00	0.85	-
[Religious]	0	0	0	0	0	0	0
Public	0	72	0	0	0	0	12
Domestic	0	80	11	0	0	27	20

TABLE 6.1 WEIGHTED SCORES FOR EACH DOMAIN OF SOCIAL ACTIVITY AND CUMULATIVE TOTALS FOR EACH REGION

DOMAIN	Sardinia	Sicily	S Italy	Alb/Epirus	Macedonia	W. Anatolia	Mean value
Number of sites	60	50	75	70	120	60	73
METAL WORKING (MYC - CYPRIOT)	**400**	**150**	**8**	**197**	**95**	**45**	**149**
Deviation	2.68	1.01	0.05	1.32	0.64	0.30	-
Workshops	60	24	0	34	10	0	21
Moulds	60	24	0	0	30	0	19
Finished product	120	84	8	163	53	45	79
Ingots	160	18	0	0	3	0	30
POTTERY	**147**	**328**	**611**	**106**	**277**	**447**	**319**
Deviation	0.46	1.03	1.91	0.33	0.87	1.40	-
Kilns/workshops	0	16	43	0	0	40	16
[Dolii/pithoi/storage vessels]	0	0	0	0	0	0	0
Locally made Mycenaean Coarse Ware	40	36	64	0	0	20	27
Locally made Mycenaean Fine Ware	60	136	288	34	220	233	162
Grey Ware (wheel made)	0	0	75	0	0	0	12
Local/Mycenaean mixed	7	40	16	11	33	33	23
Imported Mycenaean	40	100	125	60	23	120	78
	Sardinia	**Sicily**	**S Italy**	**Alb/Epirus**	**Macedonia**	**W. Anatolia**	**Mean value**
CUMULATIVE SCORE FOR REGION	**660**	**1774**	**1296**	**646**	**818**	**1435**	**1105**
Deviation	0.60	1.61	1.17	0.58	0.74	1.30	-

The figures in this table are derived from those in the tables for each region in Chapter 5



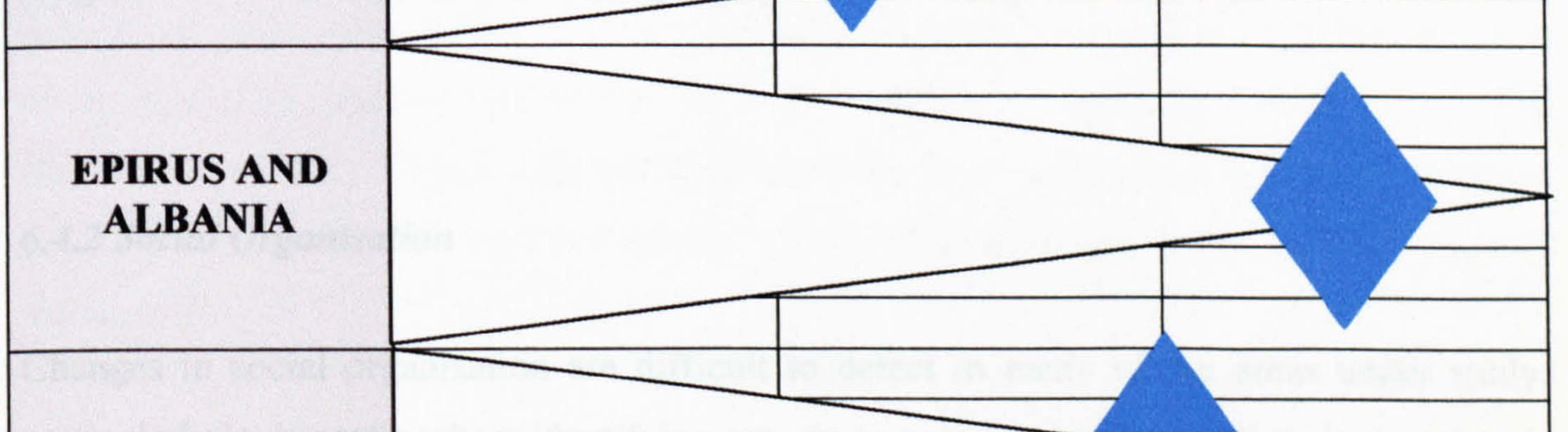
The value for each domain is based on the cumulative total of the categories in that domain without applying the ranking value for the domain itself. Viz.:

	Sardinia	Sicily	S.Italy	Epirus and Albania	Macedonia	W Anatolia
Religion	3	16	3	0	10	12
Social organisation	0	46	29	0	11	0
Funerary customs	0	60	17	31	23	88
Agriculture	13	12	32	0	10	0
Defensive provision	0	16	19	23	3	23
Architecture	0	38	3	0	0	7
Metalworking	133	50	3	66	32	15
Pottery manufacture	74	164	306	53	139	224

TABLE 6.2. COMPARISON OF STRENGTH OF EVIDENCE FOR EACH DOMAIN IN EVERY REGION

TABLE 6.3 RELATIVE LEVELS OF ACCULTURATION IN DIFFERENT PARTS OF THE PERIPHERY

REGION	+ --------INTEGRATION-------- -		
	HIGH	MEAN	LOW
SARDINIA			
SICILY			
S. ITALY			
EPIRUS AND ALBANIA			
MACEDONIA			
ANATOLIA			



6.4.1 Religion

Local religious practices, as far as we know anything about them, appear to have been affected to different extents by contact with Mycenaeans. Some items, for example figurines, usually associated with Mycenaean cult practices, are adopted into the local repertoire. In Sicily there are examples of local shrines exploiting Mycenaean pottery. In Western Anatolia the hypothesis of an early cult centre at Ephesus is attractive, but needs to be tested further by exploration, although two sites, Miletus and Liman Tepe have some figurines. In western Macedonia at Servia there is a collection of imported Mycenaean objects that is highly indicative of religious activities, but these are chance finds (and still unpublished). At Poseidi there is the remarkable discovery of an ash altar used from at least LH IIIC times in the manner also known at Epidaurus in southern Greece down to the Geometric period when the first 'Greek' style temple is built on the site. Both these sites indicate an unexpectedly high level of influence, not illustrated in the overall numerical score for Macedonia because the criteria used `reflect the presence of artefacts with religious associations, rather than the quantity of them at any one site.

6.4.2 Social Organisation

Changes in social organisation are difficult to detect in many of the areas under study, particularly in Anatolia where identifying any changes in an already sophisticated society is virtually impossible. There is better evidence in the central Mediterranean, especially for changes and innovations occurring after initial contact with the Mycenaean world, which indicate the first steps to the kind of urbanisation which was already well developed in the Mycenaean heartland (though even there urbanisation was not sufficiently well founded to survive the collapse of the Mycenaean palatial system). There is a strong correlation between regions where Mycenaean pottery has been found (Calabria, Basilicata and Apulia) and the more rapid advance of urbanisation in contrast to regions such as Etruria where the evidence for Mycenaean contact is limited.

The appearance of large-scale storage facilities, a regular street plan and different styles of architecture at Thapsos all strongly suggest some kind of central authority, as does the street plan detected at Coppa Nevigata. While none of these changes can be directly linked to contact with the Mycenaeans, they occurred after regular contact had been established and was flourishing. Whether it was a direct result of this contact or whether the increase in trade had led to individuals and areas becoming wealthy and thus creating a hierarchical society where one did not exist before, remains speculative. In the light of other evidence, even if this did not provide the impetus, it certainly accelerated the process. No changes in social organisation in Sardinia, Epirus or Albania can safely be attributed to Mycenaean contact since the development of the nuraghi is a phenomenon restricted to the western Mediterranean, while the lack of complexity in Epirus and Albania contrasts strongly with the other regions.

In Central Macedonia the pattern of tell settlements indicates a significant level of social organisation from the Middle Bronze Age. Contact with the Mycenaean heartland may well have accelerated this process to result in the regular planning and centralised storage at a number of settlements. Indeed, the function of this storage provision is probably the same as in palatial Mycenaean settlements. However, caution is needed in directly associating this development to contact with the Mycenaean world since even the few well excavated settlements have yet to be explored extensively to reveal the levels where this planning was introduced.

A phenomenon which indicates, at least, distant knowledge of Mycenaean administrative systems is the presence of a number of 'signs' which seem to imitate Linear B. These are best represented in Macedonia but there are other examples from Scoglio del Tonno and Troy.

The widespread adoption of pithoi (dolii) in many areas of the Mediterranean but particularly in the bay of Taranto and in Macedonia, is especially indicative of a change in storage and perhaps therefore in agricultural practices. This also indicates a change in the

structure of the society, which resulted in the collection of more people in 'proto-urban' centres and the production and mobilisation of crop surpluses.

6.4.3 Funerary customs

Evidence from cemetery and burial contexts has proved highly significant in the identification of acculturation in four of the areas under study. Mycenaean pottery seems to have been used by the indigenous cultures in these regions as part of their burial traditions or rituals. In Sicily, southern Italy, Macedonia and Anatolia, from LH IIIA2 at least, there is a mixture of both local and Mycenaean pottery in many of the graves. Even in areas where there is no indication of Mycenaean influence in the architecture, for example at the Dolmen site of Giovinazzo in southern Italy, Mycenaean pottery is used as part of the burial furniture, though here as elsewhere it is unclear, however, whether this demonstrated status or to fulfilled some ritual function. High scores in this domain are provided, however, not by the grave goods but by those sites where Mycenaean style graves have been adopted.

Grave types are varied and reflect both local and Mycenaean styles - even on occasion a combination of elements. These hybrid forms tend to be later in date and suggest a progression that ultimately ends in a true mixture of both traditions. Unusually, at Thapsos in Sicily, there are chamber tombs with dromoi built according to Mycenaean techniques and these have provided the majority of the Mycenaean pottery from this site. This is a good indication of the actual presence of Mycenaean settlers, which is supported by the study of the crania from tombs in the area, whose characteristics suggest intermarriage between incomers and the native population.

The contents of the chamber tombs in the southern half of western Anatolia are closer to true Mycenaean practices than those in other areas of this study. The grave goods at Müskebi reflect both traditions but are predominantly Mycenaean and include good quality imports from adjacent Mycenaean areas, for example Rhodes. Together with the existence

of true tholos tombs, these features strongly suggest the presence of Mycenaean 'settlers' in the area.

In Epirus and Albania, burial sites provide almost all the information about Mycenaean contact. The present evidence indicates a taste amongst the locals for goods of Mycenaean manufacture rather than a Mycenaean presence. The tholos tomb at Kiperi remains exceptional and cannot yet be explained as part of any pattern of evidence. At Barç in Albania, the association of weapons and imported LH IIIC Mycenaean pottery in a few burials without any local grave goods is perhaps indicative of the presence of a group with special status and resources.

There is no evidence for burial practices in central Macedonia since no cemetery sites have been identified or excavated. In western Macedonia, cemeteries at Aiani reflect closer links with the Mycenaean tradition of burial in the inclusion of, for example, alabastra, both imported and locally made, as grave goods. The Agios Demetrios-Spathes cemetery has such good quality Mycenaean grave goods (including jewellery) that it is likely that those buried in the tombs were Mycenaeans or fully assimilated into the Mycenaean tradition.

In Sardinia, although native burial contexts are well represented and many are monumental in character, it appears that Mycenaean style artefacts played no role in their burial traditions.

6 4.4. Agriculture

Agricultural studies are still limited in many of the areas discussed here, but evidence from sites in Macedonia, particularly Assiros, has shown the importance of studying the plant remains and identifying changes in crop production. In particular the study of weeds shows the shift from small garden plot cultivation to large 'field' agriculture. This may indicate a move away from individual family provision towards more centralised organisation.

The discovery of an olive pip in Mycenaean layers at Broglio di Trebisacce and another in a native context at Tufiarello are especially important and further research is needed at other sites to confirm whether indeed olive cultivation was introduced into Italy from Greece in the Late Bronze Age to provide one of the staples in the Mediterranean diet. (At present olive cultivation is assumed for both the Central Mediterranean and coastal Macedonia to be a product of the Greek colonisation movement of the 8th and 7th centuries BC.).

As already noted the adoption of pithoi/*dolii* as storage containers in southern Italy and Macedonia indicates a shift towards more intensive agricultural practices generating surplus cereals requiring longer term storage conditions. It is probable in both Macedonia and Sicily that the numbers of sites using pithoi for storage is considerably under reported. In the case of Sardinia where only two sites are reported as using pithoi it is not clear how widespread their use was. Pithoi were commonly in use at Troy (VI) and recent studies have indicated a change in agricultural soil management in the Troad that could well correlate with the use of these for large-scale storage. Whether these practices were influenced by the Hittites or the Mycenaeans is uncertain.

6.4.5 Defensive Provision

Defensive structures became a feature of a number of sites in the central Mediterranean towards the end of the LH IIIB period. They are predominantly located at coastal sites which have been suggested as ports of trade. Particularly significant examples include Porto Perone in Apulia, and Cannatello in Sicily. Recent work in the vicinity of Parga on the coast of Epirus has identified several sites defended with substantial cyclopean walls. Defensive walls in Macedonia have so far been identified at two sites, Toumba Thessalonikis and Assiros, although the profile of most tells suggests some kind of fortified perimeter. These walls are, however, made of mud brick and casemated. Although parallels are not known for walls of this type in the Mycenaean heartland - except at Lerna at a much earlier date, their appearance at the same time as Mycenaean contact is suggestive. In Anatolia it is virtually impossible to identify any influences in construction techniques

since the Hittite tradition of substantial fortifications had long been established. However, cyclopean-style walls at Ilıcatepe, Büyükkale and Torbalı are constructed without using the Hittite casemated tradition and may well have resulted from contact with the Mycenaean for which there is ever increasing evidence in the region.

6.4.6 Architecture

The identification of Mycenaean influence in architecture can be seen most clearly in Anatolia at Miletus where the domestic structures follow the Mycenaean housing style closely. The 'rectangular' buildings that emerge in Sicily also suggest influence from the Mycenaean heartland and they are immediately distinguishable from the native style of architecture. Particularly noteworthy examples of this have been found at Thapsos and Cannatello in Sicily, both of which are possible ports of trade, where the influence would be expected to be more direct and at Pantalica. The buildings at Pantalica and Thapsos are both substantial complexes, considerably larger than any in the native tradition. In Macedonia it is not clear whether any of the architecture reflects Mycenaean influence and there is none to be seen in Sardinia, Epirus or Albania.

6.4.7 Metalworking (Mycenaean-Cypriot)

Evidence in the western central Mediterranean suggests a prolific metal industry with centres in Sardinia and northern Italy producing items reflecting both Aegean and local traditions, resulting in a true Mediterranean *koine*. The precise relationship between the workshops of Sardinia, the local ore deposits and the import of ingots of Cypriot copper, is still a matter of debate, but the quantity of evidence for both production and trade is remarkable. The majority of the evidence for Mycenaean contact in Epirus and Albania is provided by imports of Mycenaean weapon types eventually deposited in graves. Three curiously made examples of standard Mycenaean type F swords, unparalleled in any other

region, suggest some level of influence on local production but no great competence in its achievement. Evidence earlier than LH IIIC does not allow any assessment of the level of metalworking practices in Macedonia. The discovery of a Mycenaean sword with a Hittite dedication at Boğazköy remains exceptional. Its earlier 'history' cannot be determined. While metalwork is quite well represented in the cemeteries on the west coast of Anatolia, much remains unpublished and the score recorded under represents the importance of metalwork in this region. In southern Italy the absence of metal finds, reflects the absence of grave contexts. Metalworking has proved to be an unsatisfactory indicator for levels of acculturation in most regions and much more remains to be done in order to understand how far fashions in metalworking transcended cultural boundaries.

6.4.8 Pottery Manufacture

The effect of contact with the Mycenaean world is most evident (but perhaps least significant) in the pottery assemblage of each area. First and foremost, Mycenaean influence can be seen in a new manner of production - wheel made pottery and new methods of firing in higher temperature updraft kilns - and also in many cases in new styles of decorated pottery. It is noteworthy that undecorated Mycenaean pottery was only very rarely imported and even more rarely imitated, an indication that it was the *appearance* of Mycenaean pottery, rather than its utilitarian practicality, which was of interest to non-Mycenaean populations. In contrast in the western Mediterranean Mycenaean coarse wares were imitated locally for such shapes as transport stirrup jars, where clearly it is there utility rather than their prestige value that was more important.

The preferences for the different shapes in each region are surprisingly varied, as can be seen in Table 6.2a & b where the figures for the sites selected for analysis in Chapter 5 are presented as percentages and graphically. They are set alongside two major Mycenaean sites in the heartland for the LH IIIB period - the Citadel House deposits from Mycenae and the West Wall deposit from Tiryns and for one of the few LH IIIC sites for which data is available - the area of the sanctuary at Phylakopi.

TABLE 6.4 MYCENAEAN POTTERY FASHIONS IN DIFFERENT PARTS OF THE PERIPHERY COMPARED WITH THE MYCENAEAN HEARTLAND (CF. TABLE 6.5)

	Heartland			Sardinia	Sicily		Italy		Macedonia			Anatolia	
	Mycenae Citadel House *S*	Tiryns West Wall *S*	Phylakopi Sanctuary *S*	Antigori Table 5.3 *S*	Thapsos Table 5.7 *C*	Lipari Table 5.8 *S*	Scoglio Table 5.11 *S*	Broglio Table 5.12 *S*	Assiros Table 5.17 *S*	Toumba Table 5.18 *S*	Kastanas Table 5.19 *S*	Troy Table 5.24 *S*	Müskebi Table 5.25 *C*
Alabastra	-	-	-	0	26	7	1	1	4	3	2	8	10
Bowls	44	69	47	22	3	5	10	20	37	32	60	14	3
Cups	7	5	-	17	6	59	1	16	14	11	3	5	16
Jugs/Amph	10	12	18	11	12	17	7	42	16	17	7	8	13
Kraters	8	4	6	22	0	3	13	1	13	11	9	5	0
Kylikes	12	-	7	6	0	0	14	1	4	4	4	28	11
PJ	2	1	6	0	47	3	22	0	6	4	1	9	15
SJ	9	5	8	11	6	1	25	6	1	1	1	3	20
Others	5	2	8	11	0	5	7	13	5	17	13	20	12

Context: S – Settlement. C- Cemetery.

Unusually high proportions
Unusually low proportions

The % tabulated here are drawn from the data given in the Tables for each area excluding all fragments which could not be assigned to a specific shape. No distinction is made between locally made and imported fabrics. With the exception of Lipari the bulk of the pottery from sites in the periphery dates to between LH IIIA and IIIC. In the case of Antigori the pithoi included in Table 5.3 have been omitted. As already noted the figure for bowls at Kastanas almost certainly includes large numbers of cups (5.5.8). The % for Mycenae and Tiryns are given for LH IIIB deposits and do not include any unpainted wares – the % have been calculated from data for Mycenae given in Wardle, K.A., 1969, 279; 1973, 320; Mountjoy 1976, 110 and for Tiryns in Wardle K.A., 1973, 32. The % for Phylakopi sanctuary are for LH IIIC deposits and calculated from data given in Mountjoy 1985, Table 5.5.

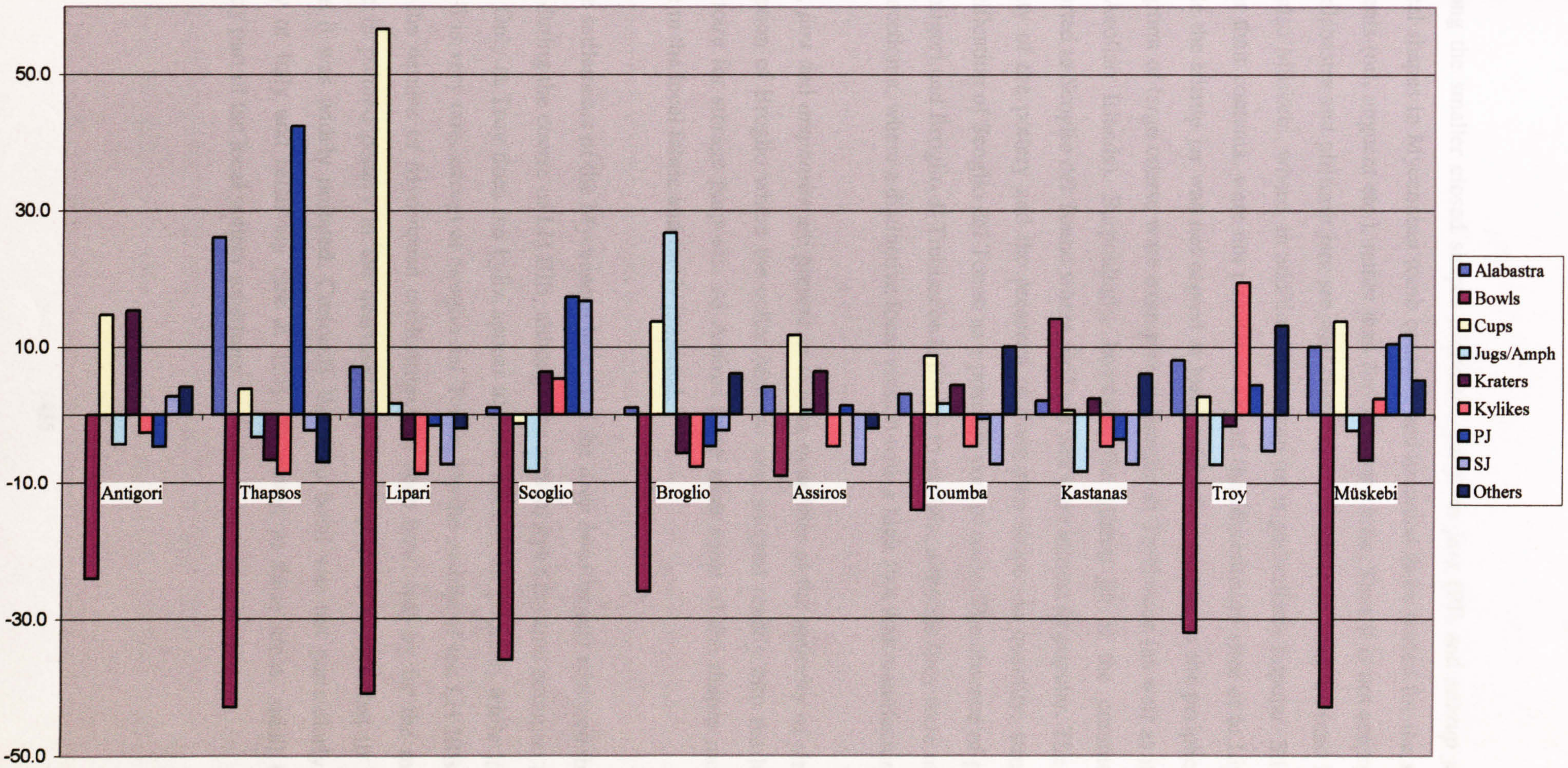


TABLE 6.5 MYCENAEAN POTTERY FASHIONS IN DIFFERENT PARTS OF THE PERIPHERY COMPARED WITH THOSE IN THE HEARTLAND (CF. TABLE 6.4).
(The % representation is normalised to 0 for each vessel shape in the heartland and for each area expressed as greater (more common) or less (rarer) in each region).

Among the smaller closed shapes *alabastra*, *piriform jars* (PJ) and *stirrup jars* (SJ) are typical shapes in Mycenaean tomb contexts and assumed to be traded for the sake of their contents (oil, unguent etc.), rather than for their own sake. Thus it is not surprising to find that alabastra and piriform jars are well represented in tombs at Thapsos (and Beşik Tepe) and also Müskebi, where, in addition the stirrup jar is particularly popular. Stirrup jars, or rather their contents, were not popular at any of the Macedonian sites or at Lipari. On the whole the stirrup jar was not copied at local production centres in the periphery, with the exception of large coarse ware examples at Broglio di Trebisacce (as well as in Sicily and the Aeolian Islands). Surprisingly, however, the stirrup jar is the commonest shape imported to Scoglio del Tonno where piriform jars were almost as popular. The exceptional quality of the pottery and the presence of these two shapes in quantity, strengthens the identification of Scoglio del Tonno as a possible port of trade. The absence of piriform jars at Antigori and Broglio di Trebisacce is harder to explain, although they were more popular in Macedonia, where a distinctive local version with a high foot was manufactured.

Jugs, *jars* and *amphorae* are present in similar quantities at the majority of sites, with the exception of Broglio where the collar neck jar was adopted readily into the local pottery repertoire for storage purposes. At Assiros these were some of the shapes most typically made in the local fabric and rarely imported.

In the settlements of the Mycenaean heartland the *deep bowl* largely replaced the decorated *kylix* during the course of LH IIIB, although the conical kylix became common again in LH IIIC. Only at Troy does the kylix appear to have been at all popular, while in Sicily and Italy it is very rare, except at Scoglio del Tonno. By the middle of the LH IIIB period and until the demise of Mycenaean civilisation, the deep bowl was by far the most popular *shape in painted pottery in* the heartland and this popularity is reflected in Macedonia, where it was widely imitated. Curiously the deep *bowl was not par*ticularly popular in Sicily or Italy and relatively rare at Troy. However, in these areas, small bowls were already part of the local pottery repertoire.

Painted *cups* were not particularly common in the heartland (although unpainted examples were used widely), but this shape seems to have found particular favour with the local populations in Italy (even allowing for the presence of large numbers of Vapheio cups and other early cups in the figures for Lipari) and Macedonia. More surprising is their scarcity at Scoglio del Tonno and their frequency in *tombs* at Müskebi (and Beşik Tepe, where the kylix is also well represented) *Kraters*, though regularly present in heartland contexts, are much more popular in some parts of the periphery - Sardinia, Scoglio del Tonno and Macedonia in general.

However, the influence was not simply restricted to fashion in shape and decoration. It is evident that the local potters not only did not abandon their own handmade pottery (or in the case of Anatolia wheelmade) but selected items for copying that enhanced their own pottery repertoire. In central Macedonia, for example, decorated Mycenaean pottery largely replaces the local matt painted and incised styles, but with vessels that served a very different function. In this area, in addition to deep bowls, which have no precise equivalent in size in the bowls of the local repertoire, the introduction of cups, which had no local counterparts (unless there were cups in metal, which had been recycled, or wood or horn which has long since decayed) and kraters (which did) suggests the adoption of new habits. The presence of these vessels - which seem to reflect drinking sets - perhaps indicates the introduction of different customs that required a new range of equipment.

A similar picture can be seen in the western central Mediterranean where the local pottery traditions were supplemented rather than abandoned when *the production of Mycenaean* style pottery, which became widespread by LH IIIB, was introduced. It is particularly significant that this production included not only fine wares, but also coarse wares and even pithoi. In addition the potters' wheel was used with traditional 'impasto' clays and for the production of Grey ware.

In addition to the local production of Mycenaean style pottery, which is particularly marked in Western Anatolia, Macedonia and southern Italy, the transfer of ideas for pottery production was often reciprocal. In the east Aegean-west Anatolian *koine,* for example,

Mycenaean shapes were produced at Troy in the local Grey and then Tan wares, while traditional Anatolian shapes, such as the flask and carinated krater became part of the Mycenaean repertoire, especially in Rhodes. Locally produced Mycenaean pottery from Miletus was also exported to many of the islands of the Dodecanese.

In western Macedonia the process of acculturation is especially evident in the adoption of a local technique, matt painted decoration, on the Mycenaean alabastron. One item combines the local tradition of vertical handles on cups and the Mycenaean horizontal handle on the shoulder of alabastra and is painted with matt paint in a combination of both Mycenaean and Macedonian motifs. In central Macedonia, both the cut-away-neck jug and the double vessel are made in Mycenaean fabric.

The same processes can be seen to a certain extent in the central Mediterranean: Mycenaean shape bowls are made in impasto in southern Italy, while spouted jugs, deep bowls and three-handled jars are adopted into the local repertoire in Sicily. In Southern Sardinia there is a positive correlation between wheelmade grey wares and the presence of Mycenaean, but this is a short-lived phenomenon since the grey wares ceased to be manufactured at the same time as Mycenaean pottery.

6.5 A STATISTICAL TEST

In the previous sections, the evidence for the strength of acculturation – or lack of it – in each region has been set out domain by domain and the cumulative impression discussed. Clearly this is only partly numerical since the values given to the rankings are subjective, even though the order of significance of each domain can be justified. Multivariate statistical analysis provides, however, an additional tool for comparison which is independent of the values given to the rankings[1].

Statistical analysis of archaeological data usually confronts two problems in its application, the scarcity and quality of the data. Since *exact* solutions of multivariate analysis require more observations (the regions of the study) than the number of variables (the eight cultural domains) used to describe those observations, the best practical compromise is which

examine *qualitative* rather than quantitative relationships at this high level of abstract generalisation. This compromise has the advantage that, in using overall domain scores, the inaccuracies of the component elements should cancel each other out. Rather than using the raw scores these have been turned into percentages on a region by region basis. This has the disadvantage of ignoring the *absolute* size of the acculturation index for the domain, which in any case shows with adequate clarity in Tables 6.1 and 6.2 but should smooth out still further the residual roughnesses of the quantitative method.

The starting point of the statistical analysis is the six 'descriptions' of the relative contributions in those cultural domains (where the archaeological evidence can be examined) to the overall process of acculturation to Mycenaean values. There are two distinct ways of considering these 'descriptions' which correspond to the r- and K- modes of systems theory. In K-mode analysis the observations are considered in the light of the component elements whereas in r-mode analysis it is the interrelationships of the component elements which are considered in the context of the observations (or 'samples') in which they are manifested.

A K-mode analysis of the geographical regions in terms of the domains through which acculturation is estimated is, at first sight, the obvious and sensible analytical perspective. It is not necessarily the best starting point since it is not unknown for the variables used to describe a sample to be subtly misleading or irrelevant. Two or more variables might reflect a single underlying process or worse one or more of the variables might measure something quite irrelevant to the comparison of the samples that is intended. It is accordingly wise to start out with an r-mode analysis to check for this kind of distortion.

In fact, for both the r- and K-mode analyses the same methods can be employed: hierarchical cluster analysis and non-metric multidimensional scaling. The starting point in both cases is a symmetrical matrix of measures of association. For the r-mode analysis this is an 8x8 array of Pearson's product moment correlation coefficients, an appropriate measure of association for quantitative measurements. Pearson's r is unsuitable for K-mode correlation so for these the starting point was a 6x6matrix of average Manhattan distances.

In *multivariate dimensional scaling* the purpose of the exercise is to reduce the precise 6 or 8 dimensional representation of the relationships in the correlation or distance matrices in

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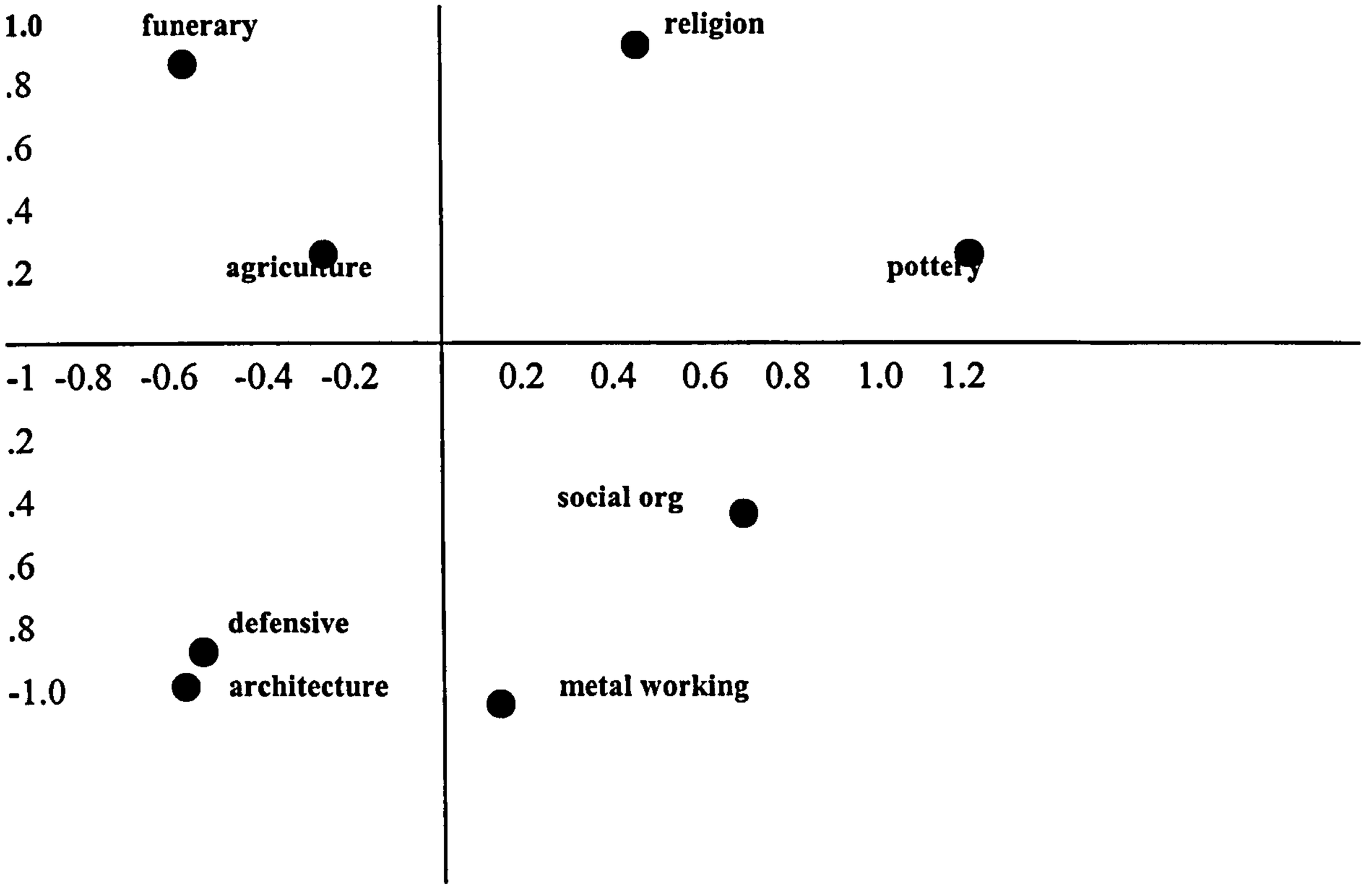
[1] I am particularly grateful to Richard Hubbard for extensive discussions of the possibilities of the technique and the principles on which it is based, and for providing the necessary statistical software.

the most faithful way to one or more dimensions and two or three dimensions are usually called for. *Hierarchical cluster analysis* produces a representation of the information in the matrices in a quite different way. The highest correlation coefficient between any two variables or the shortest distance between any two observations is found by searching the matrices. This defines the first cluster formed at the relevant distance. The procedure is then repeated to find next highest correlation coefficient or the next shortest distance. Either a new variable will be added to the existing cluster or two variables will be linked to create an entirely new cluster. The procedure continues until all variables have been joined. This kind of single link cluster analysis is often called 'nearest neighbour' clustering. The end product is a dendrogram which is an accurate representation of the distances between observations at the cost of distortion of any pattern they may form since the order of the variables is somewhat arbitrary. This contrasts with multidimension scaling where the overall pattern of relationships is preserved at the cost of distorting exact distance. Both methods are empirical procedures and can best be tested against each other to see if the pattern of observations is reproduced.

TABLE 6.6 R-MODE MULTIVARIATE DIMENSIONAL SCALING OF THE COMPONENT VARIABLES PROVIDED BY EACH CULTURAL DOMAIN USING PEARSON'S CORRELATION COEFFICIENT.

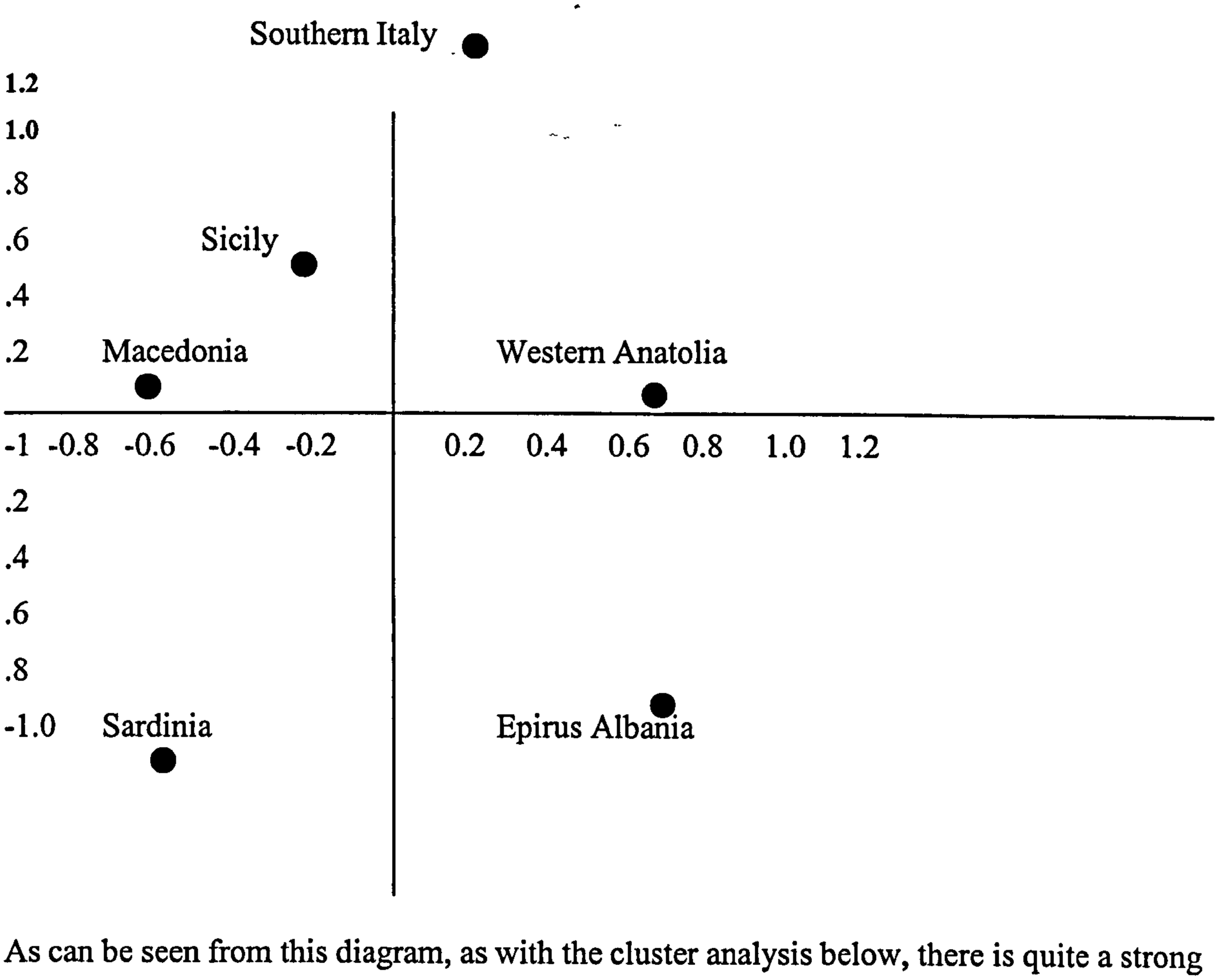
Domain		
Religion	+0.52	+0.85
Social organisation	+0.68	-0.38
Funerary customs	-0.61	+0.83
Agriculture	-0.21	+0.37
Defensive Provision	-!.15	+0.03
Architecture	-0.58	-0.96
Metalworking	+0.13	-1-02
Pottery Manufacture	+1.22	+0.24



Apart from the correlation between defensive provision and architecture (neither of which score particularly highly in the overall picture for each region, the remaining domains do not indicate a pattern which vitiates the K- mode analysis following (though cluster analysis, not illustrated here, suggests that metalworking has the worst correlation with other categories, an observation which probably matches the very uneven distribution of metal work in the different regions for different reasons in each.

TABLE 6.7 K-MODE MULTIVARIATE DIMENSIONAL SCALING OF THE OBSERVATIONS (REGIONS) PROVIDED BY EACH USING MANHATTAN DISTANCE COEFFICIENTS.

Sardinia	**-0.56**	**-1.14**
Sicily	**-0.22**	**+0.48**
Southern Italy	**+0.30**	**+1.34**
Epirus Albania	**+0.72**	**-0.95**
Macedonia	**-0.64**	**+0.10**
Western Anatolia	**+0.67**	**+0.07**



As can be seen from this diagram, as with the cluster analysis below, there is quite a strong correlation between the levels of acculturation in Sicily and Macedonia, while both Sardinia and Epirus and Albania are much more isolated, as is suggested by evidence in almost all domains.

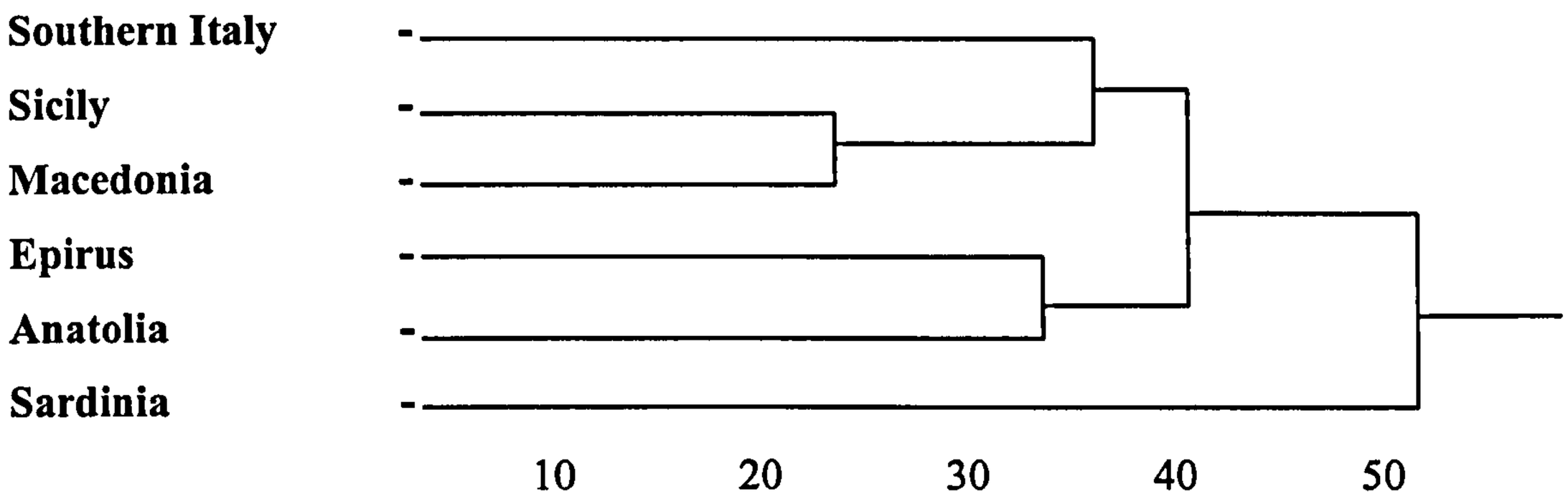


TABLE 6.8 SINGLE LINK CLUSTER ANALYSIS USING MANHATTAN COEFFICIENTS

The different situation in Sardinia is emphasised by the fact that it is the last region to be linked to the cluster, while the relatively close correspondence between Sicily and Macedonia reflects the similar level of acculturation reflected in each. The correspondence between Epirus and Albania is unlike that which is provided by the first examination of the data, though both areas share an absence (for very different reasons) of evidence for Mycenaean influence on social practices, agriculture and architecture.

6.6 TRADE OR COLONISATION

Analysis of the material remains does not support the hypothesis of colonisation in any part of the area under study, either by individuals or by any 'political' authority. It seems most likely that in the **west central Mediterranean** that the evidence for Mycenaean contact, in almost every case, reflects trade and only trade. That is not to say that no Mycenaeans ever settled in the area because there is convincing evidence from Thapsos, at least, of their presence from LH IIIA2. However, the nature of their presence there does not appear to be invasive. There is no evidence for forceful takeover, nor a single area that is *completely* Mycenaean. The nature of the evidence suggests that while trade will certainly have established trade links with the region, this is unlikely to have involved more than a small number of resident Mycenaean 'traders'. The cause of the high level of acculturation

Although it has recently been suggested that the group of sites around Ephyra in **Epirus** indicates Mycenaean 'colonisation' the evidence is tenuous and in any case exceptional. There is no one site that can be said to be completely Mycenaean in nature in any part of **Macedonia.** The evidence from western Macedonia and particularly in the area of Aiani and in the Agios Dimitrios tombs, suggests the intermingling of different traditions by the LH IIIA2 period, as Mycenaean influence filtered up from Thessaly to the south.

Anatolia poses a different problem (if one accepts the identification of Ahhiyawa with the Mycenaean civilisation) since the Hittite texts refer to the invasive intent with which the Ahhiyawans moved into Western Anatolia. There is certainly evidence at Miletus of the presence of Mycenaeans while other cemeteries in the south have a higher content of Mycenaean items than those to the north. Interaction with Mycenaeans in Rhodes and other islands in the Dodecanese resulted in a mixed ceramic repertoire reflecting a mixed population. At Troy, in the north, Mycenaeans may have maintained trading relationships in order to gain access to the Dardanelles and the Black Sea, but clearly Troy remained a major centre of north west Anatolian civilisation.

6.7 THE MYCENAEAN HERITAGE

Some indication is given of the strength of the impact of Mycenaean influence in each of the areas by its survival into the post Mycenaean period. In Sardinia, though the Nuraghic traditions become stronger and more elaborate there is little to suggest any continuing Mycenaean impact, apart from the use of the potter's wheel. In Sicily by the end of the Bronze Age any surviving Mycenaean settlers had probably been absorbed into the native culture preserving at most a few traditions, such as the use of the potter's wheel and the strainer jug. Contact with the Aegean must have ceased temporarily at this point since

Protogeometric pottery has been reported neither here nor in southern Italy. In southern Italy dolii are well represented in first millennium levels. In *Macedonia the pottery tradition* continued into the Iron Age, indicating that some aspects of Mycenaean acculturation in this region were quite durable and the presence of early Protogeometric pottery at several sites shows that contact was maintained with southern Greece. It is surely no coincidence that in Western Anatolia, where Mycenaean influence starts early and is clearly penetrating that early Protogeometric pottery is widely distributed and that the southern part of this area at least became one of the most prosperous parts of Archaic Greece. The Ionian migration (assuming it is more than myth) was directed to an area where 'Greek' culture had already been established for over 300 years.

6.8 THE MYCENAEAN WORLD AND ITS NEIGHBOURS

The relationships of the Mycenaean heartland with the peripheral areas in which they took a keen interest, fully reflect the development of Mycenaean civilisation and illustrate the extent of the Mediterranean trade network in which they played such a large part.

Already in the early Mycenaean period, the vigour of Mycenaean civilisation, so evident in the Shaft Graves, is demonstrated by the range of their overseas relationships. Although Minoan domination of trade in the Eastern Mediterranean is well attested and confirmed by finds at Miletus, there is very little to support the hypothesis of a Minoan thalassocracy extending westwards from the Aegean.

By the Palatial period the Mycenaean palaces were so fully engaged in trade throughout the Mediterranean that ideas as well as artefacts were beginning to make an impact on the societies to the west and to the north. Even in western Anatolia, where Hittite influence was already strong, Mycenaean presence was felt, as is shown both by the Hittite texts and the adoption of Mycenaean burial practices. The establishment across the Mediterranean of a network of putative ports of trade, which remained in most cases independent of Mycenaean control, is surely the direct result of the intensity of Mycenaean contact. In

many areas the purpose of this contact is probably the search for the metals which the palatial societies consumed in such large quantities. Some may have been stopping points on long routes, where safe anchorage and fresh supplies were guaranteed. Others, usually the main settlements controlling access into the hinterland, fulfilled the dual role of safe anchorages and market places where raw materials and goods could be exchanged.

It is also possible that Mycenaean concepts of centralisation and economic organisation influenced the development of social complexity in Sicily, southern Italy and perhaps in Macedonia. The intriguing examples of signs imitating Linear B suggest acquaintance with the system, if not detailed knowledge.

With the disappearance of the palaces at the end of the 13th century BC, the peripheral areas exhibit the same fragmentation in pottery styles as is symptomatic of the deeper social fragmentation of the Mycenaean heartland. By this time Mycenaean style pottery in all areas is almost wholly locally produced and the rare imports serve only to highlight the much reduced level of trade resulting from the minimal demands generated by now non-palatial economies.

Although Mycenaean civilisation was based on a sophisticated economic control of the produce of the palatial hinterlands, there is no evidence, either documentary or of artefacts, that they attempted to control areas at any greater distance. There is little evidence for settlers and none for political control in any of the areas under study, perhaps because the Mycenaean heartland itself was no more unified than any of these peripheral areas. Although there are some structural changes in the society of the peripheral areas, not all of these outlasted Mycenaean civilisation. Although the Greek colonies of the 8th and 7th centuries BC were established in areas previously known to Mycenaean traders, there is only one area in which some continuity of knowledge may be suggested – the coast of Chalkidiki and the Thermaic gulf where contact is now known to have been maintained throughout the Protogeometric period.

This study has served to clarify many aspects of the relationship between the Mycenaean heartland and the peripheral areas with which it traded, both in matters of detail and in understanding the overall relationships. It has provided a methodology and a framework through which new discoveries can be evaluated and their contribution to the overall picture assessed and indicated the relative levels of acculturation in each region on the basis of the present evidence. It has at the same time, however, revealed other avenues of fruitful research (apart from the need to publish existing discoveries) such as the role in the indigenous culture of the Mycenaean pictorial pottery which is relatively common in Anatolia and Italy. The recent discoveries of several sites with Mycenaean pottery in the Po Valley also invite further investigation of the relationship between the local metal industry and Mycenaean production.